

# Impact of Prepayment Pilot on Health Care Utilization and Financing in Rwanda: Findings from Final Household Survey

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*October 2001*

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Prepared by:

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- ▲ *Generation of new financing for health care, as well as more effective use of existing funds.*
- ▲ *Design and implementation of health information systems for disease surveillance.*
- ▲ *Delivery of quality services by health workers.*
- ▲ *Availability and appropriate use of health commodities.*

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# Abstract

This household survey conducted by Partnerships for Health Reform (PHR) and the Rwandan Ministry of Health evaluates the impact of prepayment schemes on access to health care for poor households. Rwanda is one of the poorest countries in the world: approximately 70 percent of the population of 8 million lives below the poverty line (World Bank, 1998). During the humanitarian assistance period that followed the genocide in 1994, public health care services were financed by donors and the government and provided free to patients. In 1996, the Ministry of Health re-introduced pre-war level user fees in health facilities. Following this, utilization of primary health care services dropped from a national average of 0.3 annual consultations per capita in 1997 to 0.25 in 1999. This sharp drop in demand for health services, combined with growing concerns about rising poverty and poor health outcome indicators, motivated the Rwandan government to develop prepayment schemes to assure access to the modern health system for the poor. In early 1999, the Ministry of Health in collaboration with the local communities and the technical support of PHR started the process to pilot test prepayment schemes in three health districts. At the end of their first operational year, the 54 schemes counted 88,303 members. Detailed analysis of the pilot phase has revealed that members reported up to four times higher health service use than non-members. Based on household survey data, the findings presented in this report reveal that insurance enrollment is determined by household characteristics, such as the health district of household residence, education level of household head, family size, distance to the health facility, and radio ownership, whereas health and economic indicators did not influence the demand for health insurance. The analysis confirms earlier findings reported by PHR based on provider data: health insurance has significantly improved equity in financial accessibility to maternal, preventive, and curative care for members while at the same time out-of-pocket spending has gone down per episode of illness. Survey findings suggest that the Rwandan health financing policy endorse and promote prepayment as a valuable alternative to the still dominating out-of-pocket user fee payments.

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# Acronyms

<b>DHS</b>	Demographic Health Survey
<b>GDP</b>	Gross Domestic Product
<b>GNP</b>	Gross National Product
<b>HERA</b>	Health Research for Action
<b>HC</b>	Health Center
<b>HH</b>	Household
<b>MOH</b>	Ministry of Health
<b>NHA</b>	National Health Accounts
<b>ONAPO</b>	<i>Office National de la Population</i> (National Population Office)
<b>PHC</b>	Primary Health Care
<b>PHR</b>	Partnerships for Health Reform
<b>PPS</b>	Prepayment Schemes
<b>RWF</b>	Rwandan Francs
<b>USAID</b>	United States Agency for International Development
<b>WHO</b>	World Health Organization

**Nominal Exchange Rate (Source: National Bank of Rwanda)**

USD 1\$ = RWF 335 (official period average in 1999)

USD 1\$ = RWF 370 (official period average in 2000)



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# Executive Summary

In 1998, the Rwandan National Health Accounts indicated that Rwandan households finance 40 percent of the public and private health sector, while international donors contribute 50 percent and the government 10 percent to health. Along with this overall funding distribution, the population's epidemiological profile, the country's comparatively bad performance on health indicators, and non-insured patients' problems with financial accessibility to medical care reveal that the way the health sector is financed is not effective.

In early 1999, the Rwandan Ministry of Health (MOH) started the process to develop and implement prepayment schemes (PPS) in a pilot test in three Rwandan districts, Byumba, Kabgayi, and Kagitumba. This health financing reform aimed to improve equity in financial accessibility, quality of care, financial sustainability, and community participation in the public and church-owned health sector. PPS have attracted a large number of individuals from all socio-economic groups that constitute this rural society. At the end of their first operational year, the 54 PPS – managed through voluntary work by their members – counted 88,303 individuals in their membership pools. Membership costs RWF 2,500 per household (up to seven persons), and entitles members to full coverage of basic services and drugs provided in health centers, and a limited coverage in district hospitals.

This household survey, conducted in five Rwandan districts (the three test districts plus two non-PPS districts), aims to provide information on the population's health and health seeking behavior, and to evaluate the impact of prepayment on members' access to medical care. It reaches a number of important conclusions.

First, the socio-demographic and economic characteristics of the sample population included in this survey reveal the economic hardship of these rural families. About one-third of households are headed by a single adult, and a similar proportion by women. Household heads are most likely unschooled, and live from subsistence agriculture, which generates cash to pay for consumption of approximately US\$100 per capita per year. This population forms the target group to manage and enroll in prepayment schemes.

Second, most enrolled households interviewed (58 percent) said they joined the PPS as a precautionary measure, whereas 27 percent said they enrolled because price was low. A large proportion (96 percent) of member households said they would re-enroll after their one-year membership expired. The majority of non-member households said they lack money to enroll in the schemes. Almost three-fourths of the non-members said they would like to enroll in a PPS, and those who said they would not enroll cited poverty as the main reason. Regression results revealed that the level of education of household head, family size, district of residence of the household, distance to the health facility, and radio ownership (indicating access to information and exposure to the advertising about PPS on the airwaves) are the major factors that determine whether a household joins a PPS or not. Households' health and economic indicators did not influence the demand for health insurance in spite of people citing "lack of money" as the main reason for not enrolling.

Third, the first year of prepayment schemes in Rwanda has been evaluated based on an extensive data collection. The analysis of monthly health service utilization data in health centers and hospitals has revealed that the overall use of curative services for adults and children and preventive health services for children and women was up to four times higher for PPS members than for non-members<sup>1</sup>. Household survey findings support this result: PPS members across all income groups report a much higher use than non-members of curative, maternal, and preventive care services and drugs covered by the scheme's benefit package. Non-members continue to depend on self-medication and home care, 80 percent of which is provided by traditional healers. It was found that non-members' service use is positively correlated with their income status. But among members, all income groups use services at the same rate. PPS membership thus eliminates the gap in service utilization between rich and poor.

Fourth, because of non-members' low service use when sick, non-members spend significantly less of their total income on medical care compared to PPS members. However, once they are sick and seek care, non-members pay per episode of illness up to four times more than PPS members. Thus, PPS membership has significantly decreased members' out-of-pocket spending for a full episode of illness and at the same time has substantially improved members' access to medical services. This argument holds for all income groups among PPS members, whereas non-members in lowest income quartiles continue to report significantly worse access to care compared to the richer, and compared to PPS members.

Fifth, despite the fact that the poorest were as likely to enroll as the wealthier, health financing is regressive for PPS members. The poorest PPS members contribute a larger proportion of their income on total health related expenditures than wealthier PPS members do. Equity in access to prepayment membership can be improved by specifically targeting the poorest through subsidized membership.

Results from this household survey strongly support the MOH plan to scale-up prepayment to all districts in Rwanda where this is wished by the population and providers. Findings from this survey combined with results reported from focus groups, patient exit interviews, and monthly routine data collected in prepayment schemes and health facilities are evaluated in a separate final synthesis report. The synthesis recommends the expansion of prepayment schemes to facilitate equal access to care to the people in Rwanda.

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<sup>1</sup> District averages are 1.5 curative consultations per member per year in Kabutare and Kabgayi, and 1.1 curative consultation per member in Byumba, whereas non-members' curative care consultation level scores around 0.2 consultation per non-member per year (Schneider, Diop, and Maceira, 2001b).

# 1. Introduction

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## 1.1 Overview of the Rwandan Economy and Health Sector

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### 1.1.1 The Economy

Rwanda is one of the poorest countries in the world, and it faces an unsustainable external debt burden. Since the genocide in 1994, the country has been treated as a special case for exceptional international assistance; this massive influx of foreign monies has allowed the Rwandan economy to recover somewhat. Real GNP growth rate in 1998 reached almost 5 percent, and the average annual growth projection is estimated to remain on that level for the next four years. Still, Rwanda is poor: In 1997, about 70 percent of the population of 8 million lived below the poverty line, an increase from 53 percent in 1993 (World Bank, 1998). Per capita GNP is US\$250 (1999), low even by sub-Saharan standards. Rwanda is classified as a heavily indebted poor country and has entered the assessment cycle of the International Development Association and the International Monetary Fund to receive debt relief and reduce the level of poverty (World Bank, 2000a).

There is little urban activity in Rwanda. Ninety percent of the population is rural, but, because population density is high, each family has little space to farm. Rural households are assumed to be equally poor; most of their activity is subsistence agriculture and animal husbandry, (sheep and goats; few own cattle, a sign of wealth). It is common for trade among rural households to take place in kind instead of in cash.

The lowest administrative level is a cell, which consists of approximately 100 households. Cells group into sectors, and sectors form communities of approximately 20,000 inhabitants.

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### 1.1.2 The Health Sector

Rwanda's health sector has a three-level administrative structure: the first is the central-level Ministry of Health (MOH) with four directorates, the second consists of 11 health regions, and the third is made up of 38 health districts. Similarly, care is provided at three levels, with two public referral hospitals, 28 operational district hospitals, and 330 health centers as of 1998. Health centers serve an average population of 23,030 individuals; a district hospital covers 217,428 inhabitants. The lack of trained medical and financial personnel is a serious constraint. In 1998, Rwanda counted one physician per 66,000 inhabitants, one nurse for 9,500 people, and one hospital bed per 1,700 people. The Rwandan government remains the major provider of health services, with religious organizations being important partners, especially in rural areas; 138 health centers are church-owned. The role of for-profit private providers is still limited but has been growing, mostly in urban areas. Although the Rwandan MOH in collaboration with international organizations created an extensive network of health facilities, shortage of public funds and weak management have plagued many facilities, caused drug and service prices for patients to increase, and patient utilization to drop.

Table 1.1 shows that Rwandan health indicators score below sub-Saharan averages. Rwanda reports lower life expectancy and higher mortality rates for women, children under five, and babies than the average of other sub-Saharan countries. Communicable diseases dominate Rwanda's burden of sickness. The 1998 annual report of the MOH shows that of the 2.3 million patient contacts for curative care services at health centers, 88 percent were for malaria, fever, intestinal diseases, respiratory infections, pneumonia, and skin lesions. A population-based nutrition survey revealed almost half (43 percent) of the Rwandan boys and girls under five years were suffering from nutritional stunting (Republic of Rwanda, 1999b). Lower-income families bear a greater proportion of the burden of disease.

**Table 1.1: Selected economic, demographic, and health indicators in Rwanda and Sub-Saharan region**

Indicators	Rwanda	Sub-Sahara
<b>Economic Output and Growth</b>		
GNP per capita, 1999 (US\$)	250	500
Average annual growth rate in GNP per capita (% , 1998-99)	4.8	-0.3
<b>Population and Fertility</b>		
Population, 1999 (millions)	8	642
Population density per square km, 1999	337	27
Total fertility rate, 1998	6.1	5.4
<b>Health Indicators</b>		
Life expectancy at birth, 1998		
Males, years	40	49
Females, years	42	52
Adult female mortality rate, 1998 (ages 15-59)	527	383
Under-5 mortality rate, 1998 (per 1,000)	205	151
Infant mortality rate, 1998 (per 1,000 live births)	123	92
<b>Health Expenditures</b>		
Total per capita health expenditure, 1998 (US\$, official exchange rate)	12.7	33
Foreign assistance for health per capita, 1990 (US\$)	6.4	2.5
Health expenditures as percentage of GDP, 1998		
Total	5	3.2
Government sources (sub-Saharan Africa for most recent year)	0.5	1.5

(Source: World Bank, 2000c, World Bank 2000b, National Health Accounts Rwanda 1998)

### 1.1.3 Health Financing and Cost Recovery Policies

Table 1.1 also presents health financing results from Rwanda's National Health Accounts (NHA) study (Schneider, Nandakumar, Porignon, Bhawalkar, Butera, and Barnett, 2000). Total health expenditures were US\$12.7 per capita in 1998. This level is comparable to neighboring countries but lower than the sub-Saharan average. The Rwandan health sector is largely financed by international assistance (50 percent) and private sources (40 percent), leaving the government to finance the

remaining 10 percent. NHA findings show that, while health centers offer care to the majority of the population, only 11 percent of total health monies were spent on this primary care level.

In 1996, user fees were re-introduced in the public sector, which caused utilization of health center services to drop from a national average of 0.3 curative consultations per capita per year in 1997 to 0.25 consultations in 1999. Consequently, the MOH has identified the financial accessibility of health services to be a key problem that needs improvement by changing the health care financing mechanism. The MOH selected prepayment with risk-sharing as the health financing policy to be developed and implemented as a pilot with four specific objectives:

- To improve the population's financial accessibility to care,
- To improve quality of care in health centers,
- To strengthen the community participation in the organization and management of health services, and
- To strengthen financial sustainability in health facilities and prepayment schemes (PPS).

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## 1.2 Background on the Prepayment Pilot

In 1998, two years after the re-introduction of user fees in public health facilities, the Rwandan MOH expressed concerns about low utilization rates in district health centers and hospitals. The MOH and the United States Agency for International Development (USAID) mission in Kigali invited the USAID-funded Partnerships for Health Reform Project (PHR) to assess the feasibility of changing the population's health financing modality from primarily patients' out-of-pocket payments to a community-based risk-sharing module with prepayment. PHR responded to the MOH plan to develop and pilot test with close community participation PPS in three Rwandan health districts. Based on the evaluation of the schemes' contribution to the MOH overall objectives, policy recommendations would be suggested for a nationwide scale-up of the reform

In early 1999, the MOH set up an organizational structure, first on the central level and then on the district level, to develop and implement the schemes. This structure included on the central level the PPS steering committee, and on the district level community meetings with representatives from the health, political, administrative, and church sectors. The steering committee was presided over by the Directorate of Health Care (*Direction de Soins de Santé*). It included stakeholders from the health regions, pilot and non-intervention districts, and international organizations working in the three districts' health sector. The committee had a strategic role in the schemes' development, implementation, and monitoring of monthly enrollment and provider results.

The MOH steering committee selected three health districts, Kabutare, Kabgayi, and Byumba, to participate in the pilot test. Selection criteria were availability of a functioning district hospital and health centers, political will of the district management team to launch prepayment for health care, and the interest of the population in participating in the development and management of a solidarity fund to prepay for health care. For comparison, two districts that had no PPS, Kibungo and Bugesera, were also selected.

Community participation was an important feature of scheme development and implementation. Between April and June 1999, the district-level stakeholders from the health and administrative sector met several times during one-day community workshops, to discuss and agree upon the schemes

modalities and management features. Each workshop averaged about 80 attendees including men and women from professional groups, such as nurses, mayors, and teachers, and farmers representing their communities. Their discussion results were forwarded to the central steering committee and integrated into the scheme bylaws and contractual agreement with the affiliated providers. These documents were accepted by the schemes' general assembly in each pilot district and signed by their representatives before implementation in June 1999.

Following the Rwandan law, the schemes are mutual health associations, headed by an executive bureau with four volunteers, elected by and from among the scheme members during a general assembly. The PPS federation committee comprises five members who have been elected in a general assembly of all district PPS executive bureau representatives. The federation is the partner to the district hospital as well as to the health district and other authorities.

Organizationally, each health center in the pilot districts became the partner of one prepayment scheme. A contractual agreement regulates the relationship between the two partners, describing their rights and duties. On July 1, 1999, 52 PPS were ready to accept members. Members enroll in the scheme that partners with their preferred health center. There are three enrollment categories: families (households) of up to seven members, individual membership, and group enrollment of eight and more people. PPS membership is for one year; members pay a premium at the beginning of their membership year.

Table 1.2 presents the benefit packages covered by the PPS and the premiums paid for each enrollment category. On a health center level, all preventive and curative services are covered, as well as drugs on the MOH essential drug list, and ambulance transport to the district hospital. On a district hospital level, a limited package is covered with a health center referral. (Members pay out-of-pocket for the non-covered hospital services.) Health centers play this gatekeeper role to discourage the inappropriate use of hospital services. To discourage members from moral hazard behavior, members pay a co-payment of 100 RWF (US\$0.3) for each visit at the health center.

**Table 1.2: Benefit packages, and annual premiums, by enrollment category, for pilot PPS**

Package	Byumba	Kabgayi	Kabutare
Health Centers	Services covered: Preventive and curative care Drugs on essential drug list Hospitalization at health center Ambulance transfer to hospital	Same as Byumba	Same as Byumba
District Hospital	Covered with health center referral: Consultation with physician Overnight stay Cesarean section	Covered with health center referral, full treatment per episode: Pediatric cases (<5 years) Malaria cases (>5years) Cesarean section	Same as Byumba
Annual Premium, by Enrollment Category	Individual: RwF 2,000 Family: RwF 2,500 up to 7 people; RwF 530 for each additional person Groups (with 8+ people): RwF 530 per person	Individual: RwF 2,200. Family: RwF 2,600 up to 7 people; RwF 550 for each additional person Groups (with 8+ people): RwF 550 per person	Same as Byumba

District workshop participants decided to select a provider payment mechanism that would set financial incentives to encourage providers to improve their productivity and the quality of care. Consequently, workshop participants voted for capitation payment to health centers whereas hospitals are reimbursed on a per episode basis.

In an awareness campaign during the development and implementation phase, the MOH and local health, administrative, and church authorities in collaboration with PHR used local community meetings, national radio and television, newspapers, and Sunday church services to regularly inform the population about PPS and invite residents of the three districts to enroll with their preferred PPS/health center.

By the end of the first year, membership in the 54 health insurance plans grew to 88,303 individuals, 8 percent of the total population of the three districts (Table 1.3).

**Table 1.3: Prepayment schemes in Rwanda, first-year performance (7/1999–6/2000)**

Prepayment Schemes Indicators	Pilot Districts with PPS			
	Byumba	Kabgayi	Kabutare	All 3 Districts
Total number of PPS	21	17	16	54
Total target population in districts	459,329	368,020	288,160	1,115,509
Total population enrolled in PPS	48,837	21,903	17,563	88,303
Average number of members per PPS	2,326	1,288	1,098	1,635
First year average PPS enrollment rate	10.6%	6.0%	6.1%	7.9%

Source: Schneider, Diop, Maceira, and Butera, 2001

### 1.3 Documenting the Prepayment Pilot

The current report aims to provide information to the Rwandan MOH on changes in the demand for health care and the household behavior due to the prepayment pilot. The household survey's specific objectives are threefold:

Provide information on the demand for health care services in the three districts (Kabutare, Kabgayi, and Byumba) where the population has had the choice to enroll in prepayment schemes for basic health care services since July 1, 1999, and in the two non-intervention districts (Kibungo and Bugesera), where all non-exempted patients pay out-of-pocket fees for health service use.

Analyze the population's participation in prepayment schemes in the three pilot districts.

Evaluate the impact of prepayment for health care in the three pilot districts on the population's utilization of and expenditure for health care services.

The study area of the household survey covers the pilot and non-intervention districts. The scope of the study includes socio-demographic characteristics of individuals, socio-economic characteristics of households, sources and level of income of households, participation in PPS, health care expenditures, and the use of health care (curative care, vaccination, prenatal care, and obstetrical care). Data collection was carried out by ONAPO.

Several earlier PHR reports also document and evaluate the prepayment experience. Data were collected through visits to health facilities and PPS offices; surveys of providers, households, and other stakeholders; patient exit interviews; and focus groups with the public. *Development and Implementation of Prepayment Schemes in Rwanda* (Schneider, Diop, and Bucyana, 2000) describes the development and implementation of the PPS pilot phase and presents results of the first six months of the experience. The PHR technical report *Utilization, Cost, and Financing of District Health Services in Rwanda* (Schneider, Diop, Maceira, and Butera, 2001) evaluates the impact of PPS on utilization, cost, and finances in health centers and hospitals. A *Summary of Results: Prepayment Schemes in the Rwandan Districts of Byumba, Kabgayi, and Kabutare* (Diop, Schneider, and Butera, 2000) contains preliminary results of the prepayment pilot and summaries of the patient exit interviews, the provider market analysis, and the follow-up focus-group survey, information that was also presented at a final three-day evaluation workshop in Kigali in September 2000. A 1999 report authored by that National Population Office (*Office National de la Population, ONAPO*) in collaboration with PHR, *Etude sur les connaissances et attitudes sur le système de pré-paiement et d'assurance*, discusses focus group findings about the public's perception of the health care system and interest in prepayment prior to the PPS experiment.

PHR's *Pilot Testing Prepayment for Health Services in Rwanda: Results and Recommendations for Policy Directions and Implementation* (Schneider, Diop, and Leighton, 2001) synthesizes the information described in the various earlier reports and compares them with the MOH's objectives for prepayment.

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## 1.4 Organization of This Report

This first chapter has introduced background information on the Rwandan health sector and the prepayment context. The second chapter describes the methodology used to collect and analyze survey data. The characteristics of this sample group (households and the individuals that constitute them) are described in the third chapter. The fourth chapter describes characteristics of PPS members and factors that influenced them to enroll. The fifth chapter presents information on the health profile and health care seeking behavior of PPS members and non-members. The sixth chapter reports on maternal health care service use and on the use of immunization services. The seventh chapter analyzes the impact of the PPS on household spending for health care. Conclusions and their policy relevance are summarized in the last chapter. The annexes contain the questionnaires used to interview household members, information relevant to the study methodology (sampling plan and regression models), and the bibliography.

## 2. Methodology

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### 2.1 Data Collection and Analysis

Before the implementation of PPS, the MOH steering committee members decided to use a quasi-experimental design to evaluate the impact of schemes on the health sector. During the period of rebuilding the social infrastructure in Rwanda, health districts have been experiencing rapid changes. Hence, factors unrelated to the PPS interventions could also have affected the performance of the health sector relative to the four objectives set by the MOH. Consequently, a quasi-experimental design was used during the pilot phase to analyze the contribution of the PPS to the achievement of the MOH objectives, while taking into consideration the other changes in the health districts which are not linked to interventions associated with prepayment schemes. It is for this methodological perspective that two health districts (Kibungo and Bugesera) where no prepayment interventions were implemented were observed during the pilot phase. An extensive data collection with survey and routine data evaluated over a two-year time period the health sector performance in pilot and control districts (Schneider, Diop, Bucayana, 2000). Results from surveys conducted in control districts are reported in this report. However, focus of the report is on PPS members and non-members in pilot districts.

Data collection for this household survey took place during 40 days in October and November 2000 and was conducted by ONAPO. Overall, 40 collectors organized into six teams interviewed households in the five districts. All participants underwent a 12-day training on the survey and the data collection. Prior to fieldwork, the questionnaires were pretested and adjusted. Questionnaire information was verified by a five-member team and entered in IMPS41 by eight data entry clerks. ONAPO sent the data entered to PHR for analysis. SPSS10 and Stata 7 were used to analyze the data sets.

Analysis was performed to evaluate PPS impact by district and by members and non-members. The sample population was divided into two groups: PPS members in pilot districts and PPS non-members in pilot and non-intervention districts. The units of analysis are households and individuals based respectively on collective socio-economic characteristics households and socio-demographic characteristics of individuals.

Additional regression analysis was added to support interpretation of findings from comparative means tests between PPS members and non-members' behavior. Annex B contains the methodological description for three regression models that estimate probabilities of enrolling in the prepayment schemes, use of health services, and out-of-pocket spending for health care.

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### 2.2 Sampling Frame

The sample was designed to provide information on the impact of prepayment schemes on households' enrollment and health care seeking behavior, as well as the related financial implications. The sample was based on the sampling frame used by the Rwandan Demographic and Health Survey

(DHS) 2000, which covered 11 health regions throughout Rwanda and was conducted by the Rwandan National Population Office in collaboration with Macro International and USAID in 2000/1. Cells that were primary sample units for the DHS were selected from sample cells identified for the Living Condition Monitoring Survey, conducted by the Ministry of Finance in collaboration with the U.N. Development Program in 2000/1.

Table 2.1 shows that households for the PPS survey were sampled at random from cells selected in the DHS sample.

**Table 2.1: Sample universe for Demographic and Health Survey and PPS household survey**

PHR sample	DHS Survey			PPS Household Survey
	Cells	Sub-cells (110 households)	Number of households	Number of households to be sampled
Strata 1	23	43	4,797	2,500
Strata 2	39	89	9,836	900
Strata 3	24	69	7,507	600
Total	86	201	22,140	4,000

This PPS household survey sampled households on two levels: first, cells were sampled with a probability proportional to the number of sub-cells per cell; second, from each of these cells one sub-cell was drawn. All 110 households identified in a sub-cell and selected on the second level from a cell were included for interviewing. Annex B contains the technical description of the sampling process.

Table 2.2 illustrates the PHR sampling with its two stratification levels for the household survey, first by district, and second by prepayment enrollment strata (see Annex B). The planned and effective sample size is shown for each strata within each district and each PPS enrollment level. Of the 4,000 households sampled from the DHS survey, 3,985 households were identified. Main constraints were encountered in Bugesera, where households identified in sub-cells had abandoned their dwellings due to socio-economic migration. This smaller effective sample size was compensated for by oversampling in Byumba. Overall 3,731 of the household interviews (94 percent) were valid and retained for analysis.

**Table 2.2: Stratification of study area by district and PPS enrollment strata: Number of households in planned sample and in effective sample**

PHR Sample	PPS participation rate in health centers' catchment area	Sample: Number of households planned	Sample: Number of households completed
Strata 1:	PPS enrollment rate $\geq 10\%$	2500	2292
Strata 2:	PPS enrollment rate $< 10\%$	900	847
Strata 3:	Health centers without PPS	600	592
Total		4000	3731

Table 2.3 provides an overview on the household survey's sample universe by district. The five districts account for 1.6 million of the country's 8 million inhabitants. The 3,731 households that produced valid interviews comprise 17,198 individuals, living in 29 cells in the five districts. The sampled number of households and individuals has been adjusted to correct for oversampling of households in Byumba.

**Table 2.3: Number of cells, households, and individuals in sample, by district**

Sample Universe	Pilot Districts			Non-intervention Districts		Total 5 Districts
	Kabutare	Byumba	Kabgayi	Kibungo	Bugesera	
Total population	288,160	459,329	368,020	265,313	262,465	1,643,287
Cells in sample	5	14	5	4	1	29
Non-adjusted number of households and individuals, by district:						
Households non-adjusted	683	1,624	832	482	110	3,731
Individuals non-adjusted	3,000	7,628	3,951	2,173	446	17,198
Weight-adjusted number of households and individuals, by district:						
Households weight-adjusted	940	1,036	542	988	225	3,731
Individuals weight-adjusted	4,129	4,997	2,605	4,535	932	17,198

Table 2.4 shows that all of the 17,198 individuals responded to the survey's gender question: the survey was conducted with 8,076 (47 percent) male and 9,122 (53 percent) female individuals. This distribution reflects the overall population gender distribution in Rwanda (ONAPO, 1996).

All but one individual, in Kambutara, gave their PPS participation status: the effective unweighted sample comprised 1,680 PPS members, 9.8 percent of the sample population.<sup>2</sup>

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<sup>2</sup> At the end of the first year, prepayment schemes in the three districts had enrolled 8 percent of the district population (Kabutare 6 percent, Byumba 10.6 percent, Kabgayi 6 percent).

**Table 2.4: Distribution of sample by gender and PPS participation, all individuals**

Distribution	Pilot Districts			Non-intervention Districts		Total 5 Districts
	Kabutare	Byumba	Kabgayi	Kibungo	Bugesera	
Gender distribution, count, and percent per district						
Male	1,864	2,326	1,236	2,186	464	8,076
	45.1%	46.5%	47.4%	48.2%	49.8%	47.0%
Female	2,265	2,671	1,369	2,349	468	9,122
	54.9%	53.5%	52.6%	51.8%	50.2%	53.0%
Total	4,129	4,997	2,605	4,535	932	17,198
	100%	100%	100%	100%	100%	100%
PPS membership, count, and percent per district						
PPS members	92	718	81	0	0	891
	2.2%	14.4%	3.1%	0%	0%	5.2%
Non-members	4,036	4,279	2,524	4,535	932	16,306
	97.8%	85.6%	96.9%	100%	100%	94.8%
Total	4,128	4,997	2,605	4,535	932	17,197
	100%	100%	100%	100%	100%	100%

Table 2.5 shows the number of interviewees qualified as eligible for the curative care or preventive care questionnaire. Of the 17,198 individuals, 4,457 had been sick in the two weeks preceding the interview and thus were eligible to respond to the curative care questionnaire. Another 2,090 individuals – women who were pregnant during the 12 months prior to the interview or who had children below the age of five – qualified for preventive care services and were interviewed with the preventive care questionnaire.

**Table 2.5: Number of individuals eligible for curative and preventive care survey**

Individuals Eligible for Survey	Pilot Districts			Non-intervention Districts		Total 5 Districts
	Kabutare	Byumba	Kabgayi	Kibungo	Bugesera	
Curative care	1,266	1,144	720	1,041	286	4,457
Preventive care	467	601	273	619	130	2,090

## 2.3 Data Collection Instruments

This household survey used three structured questionnaires for data collection: a household questionnaire; a curative care questionnaire; and a preventive care questionnaire (see Annex A). The household questionnaire gathered information on households' and individuals' socio-demographic and economic characteristics including household expenditures for consumption goods, health, and education, and households' participation in prepayment. The curative care questionnaire was

addressed to household members who were sick in the two weeks prior to the interview. It was designed to elicit information on the incidence of sickness, prevalence of various symptoms, utilization of various health providers, and mode and amount of payment for medical care, including prepayment schemes. The preventive care questionnaire was used to interview women of childbearing age who had delivered a child in the preceding five years or who were pregnant during the year preceding the interview. This questionnaire collected information on utilization of and geographic accessibility to prenatal, obstetrical, and immunization services by women and children, as well as their health expenditures for preventive services. Individuals were interviewed in the national language, Kinyarwanda.



## 3. Socio-demographic and Economic Characteristics of Sample Population

This chapter provides a picture of the prepayment target population, as well as of the generally rural Rwandan population, by describing the socio-demographic and economic characteristics of all households and individuals in the survey sample.

### 3.1 Household Characteristics

Table 3.1 provides an overview of socio-demographic characteristics of the 3,731 heads of households included in the sample. The majority of households (69 percent) are headed by a male adult, and by a person who is 40 to 59 years old (35 percent), married (57 percent), and without any formal education (43 percent). These findings also point to economic hardship, especially considering that approximately one-fourth of all households are headed by a widowed adult.

**Table 3.1: Socio-demographic characteristics of heads of households (n = 3,731)**

Household Head	Pilot Districts			Non-intervention Districts		Total 5 Districts
	Kabutare	Byumba	Kabgayi	Kibungo	Bugesera	
Age distribution, count and percent per district						
< 30	16%	19%	16%	28%	24%	20%
30-39	23%	26%	28%	30%	27%	27%
40-59	39%	35%	36%	31%	33%	35%
60 & +	22%	21%	20%	11%	16%	18%
Total N	940	1036	542	988	225	3,731
Gender distribution, count and percent per district						
Male	61%	73%	65%	76%	58%	69%
Female	39%	27%	35%	24%	42%	31%
Total N	940	1036	542	988	225	3,731
Marital status distribution, count and percent per district						
Single	5%	6%	9%	8%	4%	7%
Married	49%	64%	53%	61%	45%	57%
Widowed	33%	22%	28%	17%	23%	24%
Divorced	2%	1%	2%	1%	1%	1%
Separated	3%	2%	4%	4%	12%	4%
Union libre	7%	5%	5%	9%	13%	7%

Total N	937	1,033	541	987	219	3,717
Level of schooling, count and percent per district						
Never	46%	48%	42%	36%	53%	43%
Primary <5	26%	19%	23%	25%	25%	24%
Primary =>5	22%	25%	30%	29%	20%	26%
Above	6%	8%	6%	10%	2%	7%
Total N	940	1,036	542	987	225	3,730

Most rural households support themselves from subsistence agriculture. October and March are the two main planting periods; each is followed by a rainy period. Major crops are potatoes, manioc, yams, avocados, tomatoes, beans, and fruits. Households consume most of what they grow. They sell or trade any surplus at local markets, mainly to other community members (Muller, 1997). Among the households interviewed in this survey, 32 percent said they go to the market once a week and 19 percent go twice a week.

Table 3.2 describes households' socio-economic characteristics. The average sample household size is between four and five people, a finding that is consistent with the 1996 socio-demographic survey results (ONAPO, 1996). Households in Byumba are considerably more likely to own goats and sheep (26 percent) than are households in the other four districts, whereas the highest percentage for cattle ownership (17 percent) is in Kabgayi. This supports the argument that Kabgayi is one of the richer areas in Rwanda, cattle being a sign of wealth. Radios are owned by approximately four of 10 households in Kabutare, Kabgayi, and Kibungo. Bicycles are more numerous in Kibungo and Bugesera than in the three PPS districts, but this may be attributable to the topography in those two districts, which is favorable to cycling. Of all the households interviewed, 49 percent said they pay school fees, with most of them (75 percent) paying quarterly. Most families live in houses with walls (61 percent) and a roof (44 percent) made of clay.

**Table 3.2: Household size and income**

Households	Pilot Districts			Non-intervention Districts		Total 5 Districts
	Kabutare	Byumba	Kabgayi	Kibungo	Bugesera	
Household size, percent per district						
1 person	7%	6%	5%	8%	13%	7%
2 persons	12%	10%	11%	11%	13%	11%
3 persons	18%	17%	18%	18%	18%	18%
4 persons	22%	18%	21%	16%	16%	19%
5 persons	15%	17%	12%	17%	16%	16%
6 persons	11%	12%	10%	11%	10%	11%
7 persons	8%	9%	10%	9%	8%	9%
8 + persons	7%	12%	13%	10%	5%	10%
Total households	940	1036	542	988	225	3731
Avg. hhold. size	4.3 pers	4.7 pers	4.7 pers	4.5 pers	4.1 pers	4.5 pers
Households owning various types of assets, percent of all households						

Sheep	5.3%	26.1%	4.1%	1.2%	1.8%	13.5%
Goat	5.3%	26.1%	4.1%	1.2%	1.8%	13.5%
Cattle	8.2%	5.7%	16.9%	5.0%	2.7%	8.5%
Radio	37.9%	28.3%	42.7%	42.9%	23.6%	35.0%
Bicycle	10.0%	8.3%	10.0%	23.9%	16.4%	11.2%
Monthly per capita expenditures, per income quartiles, average RWF						
Income Q1	313	319	403	454	215	358
Income Q2	1,061	930	1,225	1,501	1,051	1,169
Income Q3	2,311	1,914	2,750	3,353	2,285	2,525
Income Q4	7,608	8,355	9,128	10,915	7,972	8,942
Monthly Avg. RWF	2,758	2,828	3,371	4,027	2,859	3,209
Monthly Avg. US\$	\$7.5	\$7.6	\$9.1	\$10.9	\$7.7	\$8.7
Annual Avg. US\$	\$89.4	\$91.7	\$109.3	\$130.6	\$92.7	\$104.1

The few job opportunities providing monthly cash income in rural areas are mainly for public sector employees such as teachers and nurses. Thus, households' annual income was computed by annualizing monthly household expenditures as a proxy<sup>3</sup>. Muller (1997) found in a household survey conducted in 1983 that the average land area farmed by Rwandan households is very small – 1.24 hectares – and households produced an average worth of agricultural product of US\$51 per capita per year, 90 percent of which was consumed by the household. The current study also found the sample households to be poor. On average, their annual per capita expenditures range between US\$90 and US\$130 per district, considerably less than the national per capita GDP of US\$250. The comparison between income quartiles reveals that individuals classified in highest quartiles (4) dispose of significantly more cash (average RWF 8,942 or US\$24.2 per capita per month) than do those in lowest quartiles (average RWF 358 or US\$0.97 per capita per month).

As noted in chapter two, the Rwandan Ministry of Finance is currently conducting a living standard survey in Rwanda, which will provide more insight on the socio-economic conditions of Rwandan households.

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### 3.2 Individual Characteristics

This section provides additional information on the 17,198 persons who constitute the households described in the previous section.

Rwanda's socio-demographic survey from 1996 estimated that half of the Rwandan population is younger than 20 years of age. This structure is also observed in the study area: 48 percent of individuals in the five districts are less than 20 years old (Table 3.3). Most of the persons included in this sample also can be characterized as female (53 percent), single (49 percent), or married (37

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<sup>3</sup> Questions M301 and M318 in the household questionnaire in Annex A asked for detailed information about households' main consumption items. They include food, school, health, and daily expenditures such as tobacco and energy costs.

percent). About 70 percent of sampled individuals who are six years and older have never gone to school or have less than five years primary education.

**Table 3.3: Socio-demographic characteristics of individuals in sample households**

Individuals	Pilot Districts			Non-intervention Districts		Total 5 Districts
	Kabutare	Byumba	Kabgayi	Kibungo	Bugesera	
Age distribution, count and percent per district						
<5	16%	17%	15%	17%	16%	16%
5-9	13%	14%	13%	14%	18%	14%
10-14	14%	15%	16%	15%	18%	15%
15-19	14%	13%	13%	14%	8%	13%
20-49	33%	32%	33%	34%	31%	33%
50+	10%	10%	10%	7%	10%	9%
Total N	4128	4997	2606	4535	931	17197
Gender distribution, percent per district						
Male	45%	47%	47%	48%	50%	47%
Female	55%	54%	53%	52%	50%	53%
Total N	4129	4997	2605	4535	932	17198
Marital status <sup>4</sup> distribution, percent per district						
Single	49%	49%	54%	46%	41%	49%
Married	32%	39%	31%	39%	34%	36%
Widowed	12%	8%	9%	6%	10%	9%
Divorced	1%	1%	1%	1%	1%	1%
Separated	2%	1%	2%	2%	6%	2%
Union libre	4%	3%	3%	6%	9%	4%
Total N	2927	3471	1871	3135	611	12015
Level of schooling if individual age 6+, percent per district						
Never	34%	35%	31%	36%	42%	35%
Primary <5	38%	34%	37%	35%	41%	36%
Primary =>5	22%	25%	26%	21%	16%	23%
Above	5%	6%	6%	8%	2%	6%
Total N	3298	3870	2031	3490	689	13378

<sup>4</sup> Marital status includes all individual in sample who are above the age of 10 years.

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### 3.3 Summary

The socio-demographic and economic characteristics of the sample population included in this survey reveal the economic hardship faced by Rwandan rural families. About one-third of households are headed by a single adult, and a similar proportion by women. Household heads are likely to be unschooled and live from subsistence agriculture, which generates cash to pay for consumption of approximately US\$100 per capita per year. Households' dependency on agricultural yield makes them vulnerable to seasonal poverty. Muller (1997) describes that the best agricultural period for the poor is generally the first quarter. From then on, the incidence of poverty increases during the year, reaching dramatic levels during the last agricultural quarter, which follows the dry season, when the stocks have not been reconstituted yet.

This rural population is the target group for enrollment in prepayment schemes.



## 4. Prepayment Members: Characteristics and Influencing Factors

Since July 1999, residents of Byumba, Kabgayi, and Kabutare districts have had the option to join a prepayment scheme. Membership entitles them to a full coverage benefit package provided in health centers and a limited package in district hospitals (see Table 1.2). During the first year of operation, the 54 prepayment schemes – each of them partnering with a health center – enrolled 88,303 persons, most of them in the “household membership” category. This chapter analyzes the socio-demographic and economic characteristics of those households. It also presents findings from regression analysis that examines the influence of socio-demographic and economic factors on PPS enrollment.

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### 4.1 Socio-demographic Characteristics of PPS Members

The PPS looked at in this study are required by their legal framework and the Ministry of Health to maintain open enrollment for all individuals in the society. They offer individual, family, and group membership categories. There is a financial incentive to enroll as a family (RWF 2,500 per family up to seven members per year) or a group (RWF 530 per person per year, for at least eight persons). Enrollment as an individual is more expensive: RWF 2,000 per enrollee per year. This structure has fostered membership by families and groups. Almost 61 percent of insured households interviewed in the survey said they have enrolled all individuals living in the household. The exception to this is young adults above the age of 18 but still living in the household.<sup>5</sup>

Tables 4.1 and 4.2 describe, by district, the socio-demographic characteristics for the sample population in the pilot districts. As Table 4.1 shows, in all three districts, households with the following characteristics are more likely to enroll in PPS: they are headed by a male adult who is married and has at least five years of primary education. Female-headed households, households headed by an elderly person (60+), and those that live at least 105 minutes from the health center are strongly under-represented among PPS members. Distance to the health facility seems to be an important enrollment condition, as most member households live within 45 minutes of the health facility. The membership starts to taper off as the distance to the health facility increases.

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<sup>5</sup> The family enrollment category includes two adults and all children up to the age of 18 living in the same household. Other household members need to enroll in a group or individual category.

**Table 4.1: Socio-demographic characteristics of PPS member households (n=2,518)**

PPS head of household	Pilot Districts			Total Pilot Districts
	Kabutare	Byumba	Kabgayi	
Age group of PPS head of household, in percent of all heads of households				
< 30	0.2%	15.1%	2.3%	7.4%
30-39	1.1%	15.3%	3.6%	7.7%
40-59	2.8%	15.8%	3.8%	8.1%
60 & +	3.5%	7.3%	2.3%	4.8%***
Gender of PPS head of household, in percent of all				
Female	1.1%	7.8%	2.6%	3.7%
Male	2.9%	16.2%	3.5%	9.0%***
Marital status of PPS head of household, in percent of all				
Single	0.0%	9.7%	1.4%	4.2%
Married	3.4%	17.3%	4.3%	10.1%
Widowed	1.3%	7.3%	2.3%	3.5%
Divorced	0.0%	0.0%	0.0%	0.0%
Separated	0.0%	8.5%	5.2%	3.5%
Union libre	0.5%	8.7%	0.0%	3.4%
Level of schooling of PPS head of household, in percent of all				
Never	1.3%	8.2%	2.3%	4.4%
Primary <5	3.9%	14.9%	0.8%	7.2%
Primary =>5	0.8%	20.3%	4.0%	9.6%
Above primary	5.8%	24.8%	14.6%	16.5%***
Time distance from house to health facility, in percent of all				
15 min	2.8%	29.8%	16.5%	9.1%
45 min	0.0%	10.5%	8.4%	9.9%
75 min	0.0%	11.6%	2.7%	6.8%
105 min	0.0%	5.7%	0.2%	2.2%***
Total %	2.2%	13.8%	3.2%	7.2%
Total N	940	1,036	542	2,518

Note: t-tests were performed to compare the average values of the insured with the non-insured sample.

\*\*\* Significant at 1 percent level of significance

Table 4.2 compares age and gender for individual members of PPS in proportion to their district's sample population. All three pilot districts report highest enrollment rates among children less than 10 years and among adults in their late thirties. This suggests that young families with small children were most likely to enroll. Thus, the prepayment family enrollment category improves access to care for children. Female and male district inhabitants were similarly represented among prepayment members.

**Table 4.2: Proportion (%) of all individuals who are prepayment members, by age and gender of individuals, by district**

PPS individual members	Pilot Districts			Total Pilot Districts
	Kabutare	Byumba	Kabgayi	
Age				
< 5 yrs	2.19	17.92	3.54	9.45
5-9	2.09	16.49	4.23	8.85
10-14	2.87	14.10	3.06	7.76
15-19	2.29	10.80	2.02	5.73
20-24	0.32	8.73	1.71	4.09
25-29	0.79	13.19	3.96	6.91
30-34	0.75	15.74	2.48	7.47
35-39	1.01	21.18	4.53	11.24
40-44	4.72	15.08	4.21	8.80
45-49	3.13	19.22	3.81	9.02
50-54	2.79	16.00	3.41	8.41
55-59	0.57	8.29	2.21	4.17
60-64	3.45	3.38	2.05	3.12
65 &+	5.88	7.81	1.78	5.83
Unknown	0	26.67	-	12.90
Gender				
Male	2.41	15.35	3.15	8.13
Female	2.09	13.53	3.08	7.15
Total %	2.24	14.37	3.11	7.60
Total N	4,129	4,997	2,605	11,731

## 4.2 Household Size and Income

Table 4.3 presents the summary statistics for monthly per capita expenditures, used as a proxy for income, for all sample households in the pilot districts. Despite a wide disparity in per capita expenditures in lowest and highest income quartiles, this entire population is poor. Like Rwanda as a whole, the three pilot districts are rural, poor, and still recovering from the civil war. People live mostly from subsistence farming. The mean income is RWF 2,919 (US\$7.9) per capita per month. Very few households report higher monetary expenditures: 50 percent of them spend less than RWF (US\$4) per capita per month, and overall 90 percent of them dispose of less than RWF 5,975 (US\$16.1) per capita per month. The highest per capita amount is RWF 192,950 (US\$521.5), which is clearly an outlier.<sup>6</sup>

<sup>6</sup> This analysis includes outliers. However, this very high amount of US\$521.5 suggests an error in data entry, as it is inexplicable who among the district population could dispose of such a high income. Salaries for teachers and nurses are about US\$70 per month.

**Table 4.3: Summary statistics on monthly household per capita expenditures in pilot districts (n [households] = 2,518)**

Mean		RWF 2,919.10	\$7.9
Std. Error of Mean		RWF 126.80	\$0.3
Median		RWF 1,475.50	\$4.0
Std. Deviation		6,362.787	17.197
Minimum		RWF 0.00	\$0.0
Maximum		RWF 192,950.00	\$521.5
Percentiles	10	RWF 267.00	\$0.7
	25	RWF 624.50	\$1.7
	50	RWF 1,475.50	\$4.0
	75	RWF 3,190.00	\$8.6
	90	RWF 5,975.00	\$16.1

The histogram in Figure 4.1 depicts the skewed nature of expenditure levels in the population of the pilot districts.

**Figure 4.1: Monthly monetary per capita expenditure in pilot districts**

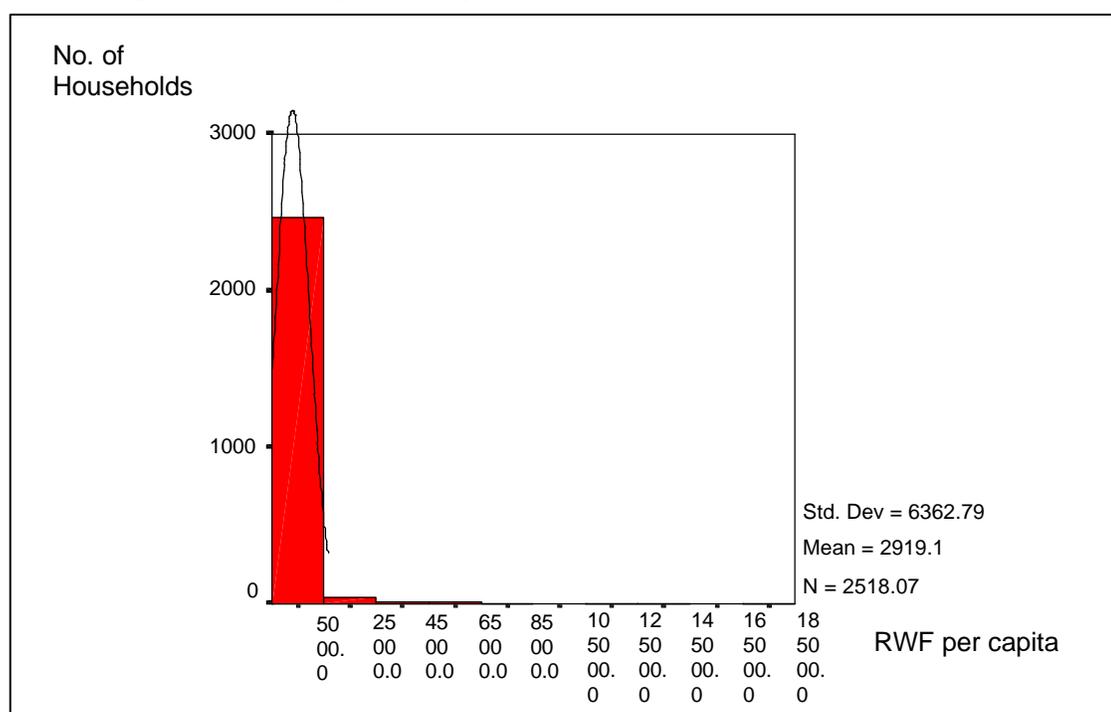


Table 4.4 shows enrollment rates by household size and income quartiles. In all three districts, larger households were more likely to enroll in prepayment schemes. PPS enrollment is higher among households in higher income quartile groups (quartiles Q2-Q4) than those in the poorest income quartile. While this enrollment difference is not significant, it must be assumed that paying the membership fee places a financial burden on the poorest households.

**Table 4.4: Proportion of households who are members of the PPS by household size and income (n=2,518)**

PPS household	Pilot Districts			Total Pilot Districts
	Kabutare	Byumba	Kabgayi	
Household size				
1 person	0.0%	5.6%	0.0%	2.1%
2 persons	2.4%	7.3%	0.6%	3.8%
3 persons	2.8%	12.4%	2.1%	6.4%
4 persons	1.7%	9.3%	3.9%	5.0%
5 persons	0.8%	13.3%	2.6%	6.9%
6 persons	0.3%	22.0%	4.4%	10.7%
7 persons	3.3%	17.8%	5.7%	10.0%
8 and more	7.8%	21.7%	5.0%	13.7%
Income quartiles				
Q1	1.6%	11.1%	2.3%	5.6%
Q2	1.2%	15.1%	2.4%	7.1%
Q3	4.4%	14.2%	3.2%	8.5%
Q4	1.5%	14.8%	5.0%	7.7%
Total	2.1%	13.8%	3.2%	7.2%
Total N	940	1,036	542	2,518

Note: t-tests were performed to compare the average values of the insured with the non-insured sample.  
 \*\*\* Significant at 1 percent level of significance

Table 4.5 presents the monthly average per capita expenditures, as well as the average household size, per income quartile for PPS member and non-member households in the three pilot districts. Independent means tests were performed to compare differences. PPS members and non-members report similar levels of per capita income per income quartiles, except for quartile 4, where PPS members show slightly higher average income than non-members. Insured households average significantly more individuals (5.5) than the non-insured (4.5) in the pilot districts. The ability to enroll up to seven members for the same annual family premium might have been an incentive for larger households to join a PPS. Each of the two groups shows a decreasing average household size with higher expenditure quartiles.

Smaller households in higher expenditure quartiles pay the same premium per household as larger families in lowest expenditure quartiles. Depending on members' service use and financial contribution to health for non-covered services, this negative relationship between household size and income status can lead to a cross-subsidies from the smaller to the larger households in the prepayment health insurance pool. However, this depends on members' per capita use of services, given their household size.

**Table 4.5: Comparison of household income and size for PPS member and non-member households in pilot districts**

Household Characteristics	PPS Members	Non-members	Total
Monthly average per capita expenditure (RWF)*			
Income Q1	347	333	334
Income Q2	1,007	1,050	1,047
Income Q3	2,056	2,241	2,225
Income Q4	9,367	8,154	8,247
Total RWF	3,370	2,884	2,919
Average household size, number of individuals			
Income Q1	5.5	4.6	4.7
Income Q2	5.6	4.7	4.8
Income Q3	5.8	4.6	4.7
Income Q4	4.8	4.1	4.1
Average number of individuals per household	5.5**	4.5	4.6
Total N (households)	181	2,337	2,518

Note: t-tests were performed to compare the average values of the insured with the non-insured sample.

\* Total household consumption serves as a proxy for household income.

\*\* Significant at 1 percent level of significance. Total household expenditures were weighted by the household size to calculate per capita expenditures.

### 4.3 Factors that Influence Enrollment in Prepayment Schemes

The household survey asked PPS member households about their reasons for enrolling and their future interest in membership. Most (58 percent) said they had enrolled because of cautiousness and prudence, whereas 27 percent said they enrolled because the membership price was low. A large proportion (96 percent) of member households expressed their intention to re-enroll after their one-year membership has expired. The 14 households not planning to re-enroll cited inability to pay the premium as the main reason.

Similarly, non-member households were asked about the reasons why they did not enroll. Most of them (71 percent) said they lacked the money to pay the premium, while some were unaware of the availability of prepayment. Asked about their future interest, almost three-fourths of the non-members said they would like to join a scheme, and those who said they would not gave poverty as the main reason.

The logit regression results presented in Table 4.5 show that the level of education of household head, family size, district of residence, distance to the health facility, and radio ownership are the major determinants for whether a household joins a PPS or not. The significant time variable – with those who live in the vicinity of the health center being more likely to enroll – might also reflect “trust in PPS.” That is, those who live close to the facility might know its personnel, as well as the PPS management team, and are therefore better informed about prepayment, which leads to confidence and enrollment in the scheme. Households’ health and economic indicators did not significantly influence the demand for health insurance. Radio ownership is indicative of household’s ability to access information and exposure to the advertising about PPS on the airwaves. It may also be seen to a certain extent as an economic indicator for these very poor households.

Households in Kabgayi are more than twice, and those in Byumba almost 15 times more likely join a PPS than are households in Kabutare. Both Byumba and Kabgayi had intensive awareness and information campaigns on PPS throughout the first year, supported by the district authorities and prepayment federation, resulting in steady monthly enrollment increases. Household heads with schooling are 103 percent more likely to enroll than those with heads who did not attend school. Large households (with five or more members) are 60 percent more likely to buy insurance compared to smaller households. This is likely because households pay a RWF 2,500 membership fee per year irrespective of family size (up to seven members)<sup>7</sup>. Therefore, larger families effectively pay less per household member. Households who live within 30 minutes of their health facility are almost three times (296 percent) more likely to join than are those who live farther away. This latter result might have been influenced by health centers' and prepayment schemes' awareness campaign, which could have been more intense in the neighborhood of a health facility. Households who own a radio are 47 percent more likely to enroll than those without radio, another result that might have been caused by the regular awareness campaign transmitted by radio.

Although male-headed households are 55 percent more likely to join than female-headed, and households with pregnant women are 23 percent more likely to join, these factors are not significant in the demand for health insurance. Economic attributes, such as cattle ownership and income quartiles also were not significant. Households in the lower income quartile were equally likely to enroll as those in the fourth income quartile.

**Table 4.6: Logit regression results for households' probability to enroll in prepayment schemes in pilot districts**

Explanatory Variable	Reference Category Variable	PPS Membership in Pilot Districts		
		Odds Ratio	S.E.	Sign
Kabgayi district	Kabutare district	3.51***	0.362	0.001
Byumba district		15.80***	0.268	0.000
Male HH head	Female HH head	1.55	0.253	0.084
HH head, age 40+	HH head, younger than 40	1.13	0.239	0.598
HH head, attended school	HH head, did not attend school	2.03***	0.196	0.000
Large HH size, 5+	Small HH size, less than 5	1.60***	0.189	0.013
HH with child <5	No child <5	0.87	0.488	0.768
HH with pregnancy in past year	No pregnancy in past year	1.23	0.674	0.761
Less than 30 min. to health facility	More than 30 min. to health facility	3.96***	0.187	0.000
HH with cattle	No cattle	1.28	0.210	0.237
HH with radio	No radio	1.47***	0.184	0.038

<sup>7</sup> Premiums for families are slightly higher (RWF 2,600) in Kabgayi due to the more comprehensive hospital coverage (see Table 1.2).

Income Quartile 1	Income Quartile 4	1.19	0.264	0.513
Income Quartile 2		1.21	0.244	0.437
Income Quartile 3		1.15	0.228	0.535
Ancillary statistics:				
N (households)		2,474		
- 2 Log likelihood		1054.901		
Goodness fit (chi-squared test)		236.998		
Degree of freedom		14		
Nagelkerke R Square		22%		

Note: Hh=Household. Z-tests were performed to test the probability of enrollment for each characteristic in a logit model. \*\*\* Significant at 1 percent level of significance. \*\* Significant at 5 percent level of significance.

Mainly in Byumba and Kabgayi, many households that did not have the funds to pay upfront the PPS enrollment fee created and joined a “tontine” to facilitate financing the fee. For five weeks, each tontine household paid RWF 500 per week toward the fee to the “tontine-caisse”. Households were enrolled as full members once they had contributed RWF 2,500. The “tontine” solution worked well: it allowed poor families to join a PPS without putting the administrative burden of “payment by installments” on the scheme bureau. In Kabutare, the local church subsidized PPS enrollment for about 3,000 orphans and widows with their family members.

#### 4.4 Summary

Based on household survey findings, PPS membership among these rural households is driven mainly by socio-demographic factors. These factors include the education level of the household head, family size, the district of residence, distance to the health facility, and radio ownership (indicating access to information, and to a certain extent an indicator of wealth). Male-headed households and households with pregnant women are more likely to enroll; however, these are not significant reasons in the logit regression.

Means comparison showed that households in the highest income group are slightly more likely to enroll (7.7 percent) than are those in the poorest (5.6 percent). However, this difference was not significant in independent t-tests and in the logit regression – the majority of these rural households are equally poor. The average monthly per capita income is US\$7.9; however, half of this rural population disposes of less than that amount, specifically US\$4.0 or less per capita per month. Overall 90 percent of them live on less than US\$16 per capita per month. Hence, only very few households have a higher income. Also, it should be considered that this rural population lives from subsistence farming and in a largely non-cash setting where it is still very common to trade and exchange goods. Hence, for the interviewed household representatives, it could be difficult to attribute a monetary value to their “traded” consumption goods.

The choice to pay enrollment fees in cash to cover an uncertain event, such as eventual health expenditures, is a considered decision for these household heads. Households interviewed said that the main reason to enroll in PPS is because they want to protect themselves against the financial burden of eventual medical care costs in case someone needs care.<sup>8</sup> This points to households’

<sup>8</sup> The French term used by translators from Kinyrwanda was “prevoyance”, meaning foresight against eventual losses.

aversion to financial risk. Non-member households interviewed expressed their wish to enroll in prepayment schemes, but gave the lack of money as the main reason to do so.

Findings from the focus group surveys and from regular discussions with health personnel and prepayment members help to interpret these household survey results. They have shown that several other factors influence households' probability to enroll in PPS, including their exposure to effective information campaigns on prepayment schemes, as well as the trust people have in the financial management of their scheme. These factors influence households' willingness to see PPS as an investment; that is, enrollment in health insurance is not necessarily driven by household income alone.



## 5. Health Profile and Health Seeking Behavior: Members and Non-members

This chapter presents information from the curative care questionnaire, which was conducted with the 4,457 of the 17,198 individuals who had been sick during the two weeks preceding the interview. The chapter describes the sample population's health profile, their use of health services before they go to a professional health care facility,<sup>9</sup> their treatment choices in general, and their choice of providers. Also, findings are presented from a regression analysis that examines the influence of PPS membership on health care utilization.

Information is reported for all sample households in pilot and non-intervention districts as well as by PPS membership status across the districts. It is of interest to find out who benefits from which health care services in general and if health care seeking behavior differs between PPS members and non-members. Different utilization patterns among different groups will highlight policy issues to develop and implement measures that will improve financial accessibility to medical care for the rural poor.

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### 5.1 Health Profile

How seriously individuals perceive their illness influences what type of medical services they will use, how much money they are ready to spend for transport and treatment, and how long they will stay away from work to recover. Sick individuals interviewed in the five districts were either adult peasants or children too young to work. Two-thirds of the sick said they were very sick, and 70 percent had to interrupt their work due to sickness. Half of those who interrupted their work due to illness had to stay away from work for seven or more days. Of those who were sick, 70 percent said that their illness started with fever, and 61 percent with headache. Most of these patients suffered from these symptoms for two to three days. Of the sick individuals, only one-third said they sought care to treat their sickness, and 73 percent of them are still in treatment.

Table 5.1 describes the proportion of individuals who were sick in terms of their socio-demographic characteristics. Women, children younger than five years, and adults older than 45 years were most likely to have had an illness.

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<sup>9</sup> Professional health care refers to care delivered in public and church-owned health centers, district hospitals, and dispensaries. It excludes care delivered by traditional healers and others such as drug vendors and pharmacists.

**Table 5.1: Socio-demographic characteristics of individuals who said they were sick during 2 weeks preceding interview (all sample districts)**

Individual Characteristics	Pilot Districts			Non-intervention Districts		Total 5 Districts
	Kabutare	Byumba	Kabgayi	Kibungo	Bugesera	
Curative eligibility, number of sick and all individuals						
Sick individuals	1,266	1,144	720	1,041	286	4,457
Individuals (N)	4,100	4,970	2,591	4,510	915	17,087
Gender, sick individuals in percent of all individuals						
Male	28.1%	20.9%	25.8%	21.6%	29.3%	24.0%
Female	32.9%	25.5%	29.1%	24.3%	32.3%	27.9%
Total	30.7%	23.3%	27.5%	23.0%	30.8%	26.1%
Age group, sick individuals in percent of all individuals						
<5	42.8%	30.0%	35.3%	34.7%	44.9%	35.8%
5-9	23.8%	16.7%	21.9%	14.4%	17.5%	18.5%
10-14	20.1%	16.5%	18.8%	12.2%	13.9%	16.4%
15-19	18.5%	17.2%	15.9%	16.1%	25.7%	17.3%
20-49	33.7%	24.6%	30.7%	24.4%	37.5%	28.3%
50+	43.0%	36.0%	42.4%	43.0%	48.7%	41.0%
Total	30.7%	23.3%	27.5%	23.0%	30.8%	26.1%
Level of education of head of household, sick individuals in percent of all individuals						
Never	33.3%	26.9%	30.4%	22.7%	31.4%	28.1%
Primary <5	24.7%	18.3%	21.4%	15.4%	26.3%	20.1%
Primary =>5	27.7%	21.8%	30.0%	25.5%	29.4%	25.8%
Above primary	28.5%	19.6%	23.5%	23.3%	60.0%	24.0%
Total	28.5%	22.2%	26.6%	20.7%	29.4%	24.4%
Total	3,278	3,849	2,020	3,468	681	13,295

Table 5.2 compares the probability of illness among pilot district inhabitants by income groups, household size, and PPS membership status. Individuals in the lowest income quartile reported a significantly lower probability of sickness than those in higher quartiles. People who live alone are considerably more likely to be sick than those who live with others, and significantly more non-members reported sickness (27.4 percent) than PPS members (21 percent).

**Table 5.2: Health profile of individuals in pilot districts by income, household size, and PPS membership (n=14,487)**

Individual Characteristics	Pilot Districts			Total
	Kabutare	Byumba	Kabgayi	
<b>Income Quartiles, sick individuals as percent of all</b>				
Q1	26.0%	19.0%	27.5%	23.4%***
Q2	33.4%	23.0%	27.6%	27.7%
Q3	29.6%	24.6%	28.7%	27.1%
Q4	34.6%	27.4%	26.2%	29.8%
<b>Household size, sick individuals as percent of all individuals</b>				
1	42.4%	45.6%	45.1%	44.1%***
2	40.9%	35.6%	36.1%	37.9%
3	38.6%	29.9%	32.5%	33.8%
4	31.7%	26.3%	30.6%	29.5%
5	32.5%	22.7%	25.9%	26.8%
6	27.7%	21.7%	25.4%	24.6%
7	25.5%	20.8%	28.9%	24.4%
8 &+	23.1%	17.9%	21.7%	20.3%
<b>PPS Membership, sick individuals as percent of all individuals</b>				
Non-member	30.9%	23.8%	27.7%	27.4%***
PPS Members	25.1%	20.5%	21.2%	21.0%
Total %	30.7%	23.3%	27.5%	26.9%
Total N	5,093	6,174	3,219	14,487

Note: t-tests were performed to compare the average values of the total insured with the non-insured sample. \*\*\* Significant at 1 percent level of significance.

## 5.2 Health Seeking Behavior Before Health Center Visit

Few patients – less than 5 percent – received home treatment before going to the health center. Of the care received at home, traditional healers and birth attendants provided 84 percent. Home treatment seems to have been provided for free or at very low cost: 55 percent of the patients did not pay for the service, and for half of those who paid, the cost was RWF 300 and less. Twenty-three percent of those who had been sick said they self-medicated with drugs they already had available at home; 32 percent went to buy drugs, with most of them (83 percent) going to a pharmacy.

Table 5.3 shows that men and women in the five districts were equally as likely to use care before a health center visit as were patients from different age groups, education levels, and income quartiles. With increasing education and income level, sick individuals are more likely to buy drugs and self-medicate before they seek care.

**Table 5.3: Use of other care before going to the health facility, by age, gender, education, and income of individual (all sample districts, n=4,457)**

Patient Characteristic	Care Before Health Center Visit	Pilot Districts			Non-intervention Districts		Total 5 Districts
		Kabutare	Byumba	Kabgayi	Kibungo	Bugesera	
Gender, percent of sick individuals							
Male	Care at home	5.3	9.4	2.9	2.7	3.2	4.4
	Use drugs available	28.6	25.4	23.3	21.7	19.4	22.8
	Bought drugs	38.8	23.0	44.3	36.2	17.7	30.6
Female	Care at home	3.8	7.0	3.7	3.4	1.4	5.1
	Use drugs available	24.0	24.4	17.3	24.3	19.4	24.6
	Bought drugs	34.1	22.8	36.5	34.1	18.1	33.7
Total %	Care at home	4.4	8.0	3.4	3.1	2.2	4.7
	Use drugs available	25.9	24.8	19.9	23.2	19.4	23.6
	Bought drugs	36.1	22.9	39.9	35.0	17.9	31.9
Age group, percent of sick individuals							
< 15 yrs	Care at home	5.0	7.0	3.5	2.9	1.8	4.6
	Use drugs available	30.3	26.8	25.2	24.2	27.3	26.9
	Bought drugs	32.4	22.3	37.8	37.7	12.7	30.7
15-44	Care at home	3.6	9.7	2.3	3.5	0.0	4.7
	Use drugs available	24.0	24.0	14.7	22.1	7.8	21.1
	Bought drugs	40.3	25.7	47.9	38.2	15.7	35.7
44+	Care at home	5.0	6.4	5.2	2.4	7.1	5.0
	Use drugs available	20.3	22.4	20.0	23.2	25.0	21.7
	Bought drugs	35.0	17.9	28.1	20.7	32.1	26.4
Total %	Care at home	4.4	8.0	3.4	3.1	2.2	4.7
	Use drugs available	25.9	24.8	19.9	23.2	19.4	23.6
	Bought drugs	36.1	22.9	39.9	35.0	17.9	31.9
Level of education of head of household, percent of sick individuals							
Never	Care at home	3.6	8.0	3.2	1.9	0.0	4.3
	Use drugs available	21.4	22.3	15.5	23.0	23.0	21.2
	Bought drugs	31.3	21.1	37.0	24.8	31.1	27.9
Primary <5	Care at home	1.8	6.6	5.3	3.3	6.0	4.2
	Use drugs available	29.3	23.6	22.7	22.1	12.0	23.7
	Bought drugs	35.8	22.9	36.1	32.0	4.0	29.1
Primary =>5	Care at home	5.9	10.5	2.4	4.5	0.0	5.7
	Use drugs available	26.8	29.3	22.2	24.2	23.8	25.7
	Bought drugs	44.0	25.4	44.4	39.5	14.3	37.2
Above primary	Care at home	12.9	3.4	1.6	2.2	0.0	5.7
	Use drugs available	36.7	29.9	25.4	22.2	100.0	29.6

	Bought drugs	39.6	26.9	54.1	62.2	0.0	44.7
Total %	Care at home	4.4	8.0	3.4	3.1	2.2	4.7
	Use drugs available	25.9	24.8	19.9	23.2	19.4	23.6
	Bought drugs	36.1	22.9	39.9	35.0	17.9	31.9
Income quartiles of household, percent of sick individuals							
Q1	Care at home	3.1	5.3	1.5	0.9	3.1	2.8
	Use drugs available	20.2	21.7	21.3	22.6	21.9	21.4
	Bought drugs	25.8	20.8	36.4	25.2	15.6	25.8
Q2	Care at home	4.2	10.1	3.0	4.0	0.0	5.1
	Use drugs available	22.5	21.4	21.0	16.7	25.0	20.7
	Bought drugs	39.1	20.5	35.3	23.8	21.4	29.4
Q3	Care at home	4.7	7.1	4.9	3.0	3.9	4.9
	Use drugs available	18.8	27.2	16.5	29.6	11.8	22.7
	Bought drugs	34.7	22.4	46.7	41.5	15.7	33.0
Q4	Care at home	5.7	9.2	4.4	4.5	0.0	5.9
	Use drugs available	40.8	28.1	21.0	23.2	26.1	29.9
	Bought drugs	43.2	27.6	42.7	50.0	21.7	39.4
Total %	Care at home	4.4	8.0	3.4	3.1	2.2	4.7
	Use drugs available	25.9	24.8	19.9	23.2	19.4	23.6
	Bought drugs	36.1	22.9	39.9	35.0	17.9	31.9
Total N	Care at home	1266	1144	720	1041	286	4457

Table 5.4 compares PPS member and non-member care seeking behavior before going to the health centers. Non-members were significantly more likely than members to use drugs available at home or to buy drugs for self-medication at a pharmacy or from a market drug vendor. The fact that members are less likely to self-medicate before going to the health center shows that they redirect their behavior away from incomplete drug treatment towards comprehensive and professional care at a health facility.

**Table 5.4: Comparison of PPS member and non-member use of other care before going to the health facility in pilot districts\* (n=3,130)**

Care Before Health Center Visit	PPS Membership	Pilot Districts			Total
		Kabutare	Byumba	Kabgayi	
Care at Home	Non-members	4.52	8.25	3.34	5.50
	PPS members	0	6.14	4.26	5.18
	Total	4.44	7.99	3.36	5.49
Use Drugs Available at Home	Non-members	26.10	25.93	20.06	24.6***
	PPS members	14.93	17.20	14.89	16.7
	Total	25.89	24.83	19.94	24.13
Bought Drugs	Non-members	36.38	24.05	40.63	33.21***
	PPS members	19.40	14.99	10.64	15.16
	Total	36.06	22.90	39.93	32.14

Note: t-tests were performed to compare the average values of the total insured with the non-insured sample.

\* Percent of all sick PPS members and non-members.

\*\*\* Significant at 1 percent level of significance.

### 5.3 Treatment Choices: None, at Home, with a Provider

Of the sick individuals interviewed in the five districts, 15 percent indicated they had received care from a professional provider only, while 7 percent had received care at home and with a provider. The remaining sick individuals either did not seek care at all (38.6 percent) or received treatment at home (39.4 percent). Asked about their geographical access to the health facility, 35 percent of the sick reported less than 30 minutes travel time from their home to the facility, 25 percent between 30 and 60 minutes, and 15 percent between 60 and 90 minutes. Once at the health facility, two-thirds of the patients were treated within 30 minutes. Overall, 11 percent of those who sought care were hospitalized, with most of them either staying three to seven days. Two-thirds who went to see a provider went only once, and almost all who sought care (94 percent) received a drug prescription.

Table 5.5 shows that men, and those sick who are age 45 and older were more likely to receive no care at all compared to women and younger age groups. With increasing education and income level, patients were less likely to report no care at all and more likely to see a provider.

**Table 5.5: Choice of treatment by socio-demographic and income group  
(all sample households, n = 4,457)**

Individual Characteristics	Care Seeking Behavior	Pilot Districts			Non-intervention Districts		Total 5 District
		Kabutare	Byumba	Kabgayi	Kibungo	Bugesera	
Gender, percent of sick individuals							
Male	No care reported	42.0	41.7	39.5	38.2	58.3	41.7
	Care at home only	41.3	33.7	44.9	41.6	31.9	39.4
	Care at home and provider	6.7	8.2	4.4	5.6	1.4	6.2
	Care at provider only	9.9	16.3	11.2	14.6	8.3	12.7
Female	No care reported	27.5	41.3	35.4	34.8	48.4	35.5
	Care at home only	49.5	34.4	49.8	43.0	30.6	42.9
	Care at home and provider	6.7	9.7	7.7	5.4	6.5	7.3
	Care at provider only	16.4	14.5	7.1	16.7	14.5	14.3
Age group, percent of sick individuals							
< 15 yrs	No care reported	32.8	39.2	33.9	30.4	56.4	35.5
	Care at home only	45.4	34.8	48.1	45.4	36.4	42.5
	Care at home and provider	7.6	8.9	7.3	6.8	-	7.2
	Care at provider only	14.2	17.2	10.7	17.4	7.3	14.7
15-44	No care reported	37.0	40.9	38.0	39.7	60.8	40.3
	Care at home only	45.4	33.1	52.6	40.7	19.6	40.7
	Care at home and provider	6.3	10.9	3.3	6.5	2.0	6.8
	Care at provider only	11.3	15.1	6.0	13.1	17.6	12.2
45	No care reported	41.0	48.4	44.4	45.1	35.7	43.9
	Care at home only	41.6	34.5	33.8	37.8	42.9	37.8
	Care at home and provider	5.7	4.1	8.1	-	14.3	5.2
	Care at provider only	11.7	12.9	13.6	17.1	7.1	13.1
Level of education of head of household, percent of sick individuals							
Never	No care reported	44.2	46.0	41.2	44.7	41.0	44.1
	Care at home only	40.5	32.7	42.4	35.4	44.3	37.8
	Care at home and provider	4.4	7.7	6.2	4.3	4.9	5.7
	Care at provider only	10.9	13.6	10.2	15.5	9.8	12.4
Primary <5	No care reported	33.0	44.9	37.7	45.1	66.0	42.3
	Care at home only	45.1	33.4	49.8	36.1	18.0	38.6
	Care at home and provider	6.2	5.7	4.3	6.6	4.0	5.7
	Care at provider only	15.7	16.0	8.2	12.3	12.0	13.4
Primary =>5	No care reported	29.8	33.9	36.0	29.9	61.9	33.2
	Care at home only	49.2	39.4	50.2	49.0	23.8	46.1
	Care at home and provider	10.7	11.4	5.8	4.5	0	7.7

	Care at provider only	10.3	15.3	8.0	16.6	14.3	13.0
Above primary	No care reported	19.4	30.8	22.1	11.1	0	20.1
	Care at home only	52.9	26.5	52.5	55.6	100.0	47.1
	Care at home and provider	9.7	17.1	10.7	11.1	0	12.1
	Care at provider only	18.0	25.6	14.8	22.2	0	20.7
Income quartiles, percent of sick individuals							
Q1	No care reported	54.9	50.7	44.9	52.2	56.3	51.5
	Care at home only	37.0	32.0	48.1	33.9	37.5	37.2
	Care at home and provider	1.7	5.2	2.2	3.5	0	2.9
	Care at provider only	6.4	12.1	4.8	10.4	6.3	8.4
Q2	No care reported	35.4	46.5	43.5	42.9	53.6	42.2
	Care at home only	47.4	32.1	43.4	34.1	42.9	39.6
	Care at home and provider	3.2	8.7	6.3	4.0	0	5.1
	Care at provider only	14.0	12.7	6.8	19.0	3.6	13.0
Q3	No care reported	36.9	37.9	31.0	27.4	62.7	36.3
	Care at home only	44.9	35.5	51.2	50.4	23.5	42.7
	Care at home and provider	6.0	9.6	6.9	5.2	3.9	6.7
	Care at provider only	12.3	16.9	11.0	17.0	9.8	14.3
Q4	No care reported	19.5	33.3	28.1	25.0	30.4	26.2
	Care at home only	48.3	35.8	45.9	50.0	26.1	43.9
	Care at home and provider	15.3	11.2	8.9	9.8	13.0	12.0
	Care at provider only	16.8	19.7	17.0	15.2	30.4	17.9
Total %	No care reported	36.0	41.5	37.7	36.7	53.7	39.0
	Care at home only	44.7	34.0	47.1	42.2	31.3	40.9
	Care at home and provider	6.7	8.9	5.9	5.5	3.7	6.7
	Care at provider only	12.6	15.6	9.4	15.6	11.2	13.4
Total N	Sick Individuals	1,266	1,144	720	1,041	286	4,457

Table 5.6 compares treatment choices. Non-members are significantly more likely than PPS members to receive care at home only. As mentioned above, 84 percent of home care is provided by traditional healers and their assistants. Thus, non-members have a considerably lower probability to seek care from a health center provider, as well as to be treated at home and receive care from a provider. Prepayment membership significantly changes patients' care seeking behavior and directs a larger proportion of them to professional treatment.

**Table 5.6: Comparison of PPS member and non-member treatment choices in pilot districts, in percent (n=3,130)**

Care Seeking Behavior	PPS Membership	Pilot Districts			Total
		Kabutare	Byumba	Kabgayi	
No Care Reported	Non-members	36.63	41.98	37.90	38.75
	PPS members	4.48	38.57	27.66	33.21
	Total	36.03	41.55	37.66	38.42
Care at Home Only	Non-members	45.19	36.36	47.80	42.82***
	PPS members	17.91	17.94	17.02	17.85
	Total	44.68	34.03	47.09	41.34
Care at Home and Provider	Non-members	6.58	8.50	5.81	7.05**
	PPS members	13.43	11.30	8.51	11.32
	Total	6.71	8.86	5.87	7.30
Care at Provider Only	Non-members	11.59	13.16	8.49	11.38***
	PPS members	64.18	32.19	46.81	37.62
	Total	12.58	15.57	9.38	12.94

Note: t-tests were performed to compare the average values of the total insured with the non-insured sample.

\*\*\* Significant at 1 percent level of significance, and \*\* significant at 5 percent level.

## 5.4 Choice of Health Care Provider

When they seek treatment from a provider, Rwandans who live in rural districts either seek care in public and church-owned health centers and district hospitals, or with a traditional healer. Their choice is limited by the availability of roads and transport, and – if not insured – their ability to pay fees for drugs and services charged by providers. Most patients walk to the health facility or are carried there by “patient carriers.” PPS members select and enroll with the prepayment scheme affiliated with their preferred health center. This decision is binding for one year, and members’ PPS choice is limited by their possibility to travel to the health center when they are sick.

Half of the 980 patients who sought care with a provider indicated that the principal reason to see this provider was the proximity to their house. Other reasons were “competent staff” (12 percent), and “the provider is not expensive” (8 percent). Asked about the providers’ resource situation, 70 percent of the patients said the provider always has drugs; 6 percent complained that drugs seldom were available. Patients were treated by a nurse (60 percent), a physician (22 percent), or a traditional healer (16 percent).

Table 5.7 describes the choice of providers for those individuals who responded to the curative care questionnaire. Whereas 78 percent of the sick did not seek care at all, overall 22 percent went to any provider, with most of them going to a public health center (9.7 percent) or to a traditional healer (4.1 percent). Seeing a traditional healer seems more of a custom for the sick in Byumba than in Kabgayi and Kabutare. Care seeking behavior is similar for men and women, and for patients in different age groups. A higher education level relates to fewer visits to traditional healers and more to professional providers. Patients in all income groups reported a similar probability to use traditional healers but the use of other providers increased as income increased.

**Table 5.7: Choice of health care provider by socio-demographic and income group  
(all sample districts)**

Patient Characteristics	Place of Treatment First Provider	Pilot Districts			Non-intervention Districts		Total 5 Districts
		Kabutare	Byumba	Kabgayi	Kibungo	Bugesera	
Gender, percent of sick individuals							
Male	Care with any provider	23.9	25.6	17.4	22.2	21.0	22.9
	Public HC	13.7	10.5	6.7	15.4	12.9	10.9
	Church HC	2.7	3.5	2.5	2.3	3.2	3.0
	Other PHC provider	2.2	4.2	2.7	1.8	0.0	3.1
	Hospital	4.0	1.3	3.3	1.4	0.0	2.3
	Traditional healer	1.3	5.9	2.2	1.4	4.8	3.6
Female	Care with any provider	17.6	26.5	16.6	20.2	9.7	21.3
	Public HC	9.6	9.9	5.4	12.0	4.2	8.8
	Church HC	2.0	4.7	3.1	1.9	1.4	3.4
	Other PHC provider	2.0	3.0	1.9	2.3	4.2	2.5
	Hospital	2.6	2.1	2.6	0.8	0.0	2.1
	Traditional healer	1.4	6.8	3.6	3.4	0.0	4.4
Age group, percent of sick individuals							
<15 yrs	Care with any provider	22.7	28.0	19.5	24.2	7.3	24.0
	Public HC	11.9	10.1	8.0	15.5	3.6	10.4
	Church HC	2.5	3.9	3.2	2.4	1.8	3.2
	Other PHC provider	2.0	4.2	2.7	3.4	1.8	3.3
	Hospital	4.2	1.5	2.2	1.4	0.0	2.1
	Traditional healer	2.0	8.1	3.4	1.9	0.0	4.9
15-44 yrs	Care with any provider	18.1	27.0	14.4	19.6	19.6	21.3
	Public HC	9.5	11.7	3.8	12.6	9.8	9.5
	Church HC	1.4	4.6	2.6	1.0	3.9	3.1
	Other PHC provider	2.6	3.7	2.4	1.5	3.9	3.0
	Hospital	3.4	2.0	3.3	1.0	0.0	2.4
	Traditional healer	1.1	5.1	2.4	3.5	2.0	3.4
45 yrs &+	Care with any provider	20.0	19.4	17.4	17.1	21.4	18.9
	Public HC	14.1	6.7	6.3	11.0	14.3	8.9
	Church HC	3.5	3.9	2.6	3.7	0.0	3.4
	Other PHC provider	1.2	1.5	1.1	0.0	0.0	1.1
	Hospital	0.6	1.8	3.7	0.0	0.0	1.8
	Traditional healer	0.6	5.5	3.7	1.2	7.1	3.6

Level of education of head of household, percent of sick individuals							
Never	Care with any provider	18.6	22.9	14.2	19.9	14.8	19.6
	Public HC	11.1	7.7	6.3	12.4	8.2	8.4
	Church HC	2.0	3.6	1.9	1.9	1.6	2.7
	Other PHC provider	2.0	2.8	1.9	0.6	1.6	2.2
	Hospital	2.9	1.9	1.0	1.2	0.0	1.8
	Traditional healer	0.6	6.9	3.1	3.7	3.3	4.5
Primary <5	Care with any provider	21.3	24.5	16.1	18.9	16.0	20.9
	Public HC	11.3	9.2	7.2	10.7	10.0	9.4
	Church HC	4.5	5.4	1.3	2.5	0.0	3.7
	Other PHC provider	1.8	1.7	0.9	2.5	4.0	1.8
	Hospital	0.9	1.2	2.2	0.8	0.0	1.3
	Traditional healer	2.7	6.9	4.5	2.5	2.0	4.7
Primary =>5	Care with any provider	20.4	26.9	17.9	21.0	14.3	22.4
	Public HC	10.2	11.9	5.1	14.6	4.8	10.1
	Church HC	0.9	3.4	3.5	1.9	9.5	2.9
	Other PHC provider	2.1	3.6	3.2	1.3	0.0	2.9
	Hospital	5.5	2.0	3.8	1.3	0.0	3.0
	Traditional healer	1.7	5.9	2.2	1.9	0.0	3.5
Secondary +	Care with any provider	27.0	44.0	31.3	33.3	0.0	36.7
	Public HC	17.5	21.4	4.5	22.2	0.0	17.3
	Church HC	1.6	5.7	7.5	2.2	0.0	4.8
	Other PHC provider	3.2	12.6	4.5	8.9	0.0	8.7
	Hospital	4.8	0.6	13.4	0.0	0.0	3.9
	Traditional healer	0.0	3.8	1.5	0.0	0.0	2.1
Income quartiles, percent of sick individuals							
Q1	Care with any provider	11.29	17.19	9.24	13.91	6.25	13.50
	Public HC	6.45	6.03	2.41	5.22	6.25	5.15
	Church HC	2.15	3.35	2.41	2.61	0.00	2.72
	Other PHC provider	0.54	1.12	0.80	1.74	0.00	0.97
	Hospital	1.61	0.89	0.80	0.87	0.00	0.97
	Traditional healer	0.54	5.80	2.81	3.48	0.00	3.69
Q2	Care with any provider	17.02	23.05	14.44	23.02	3.57	19.31
	Public HC	10.64	8.42	5.05	14.29	3.57	8.58
	Church HC	2.13	4.81	3.25	1.59	0.00	3.43
	Other PHC provider	2.55	2.20	1.81	1.59	0.00	2.06
	Hospital	0.43	0.80	0.72	0.00	0.00	0.60
	Traditional healer	1.28	6.81	3.61	4.76	0.00	4.55

Q3	Care with any provider	18.47	28.52	20.74	22.22	13.73	23.56
	Public HC	13.51	10.79	8.89	17.78	7.84	11.53
	Church HC	1.80	3.66	2.96	2.22	0.00	2.84
	Other PHC provider	0.90	3.85	2.22	2.22	3.92	2.76
	Hospital	0.45	2.12	2.96	0.74	0.00	1.75
	Traditional healer	1.80	7.71	3.70	0.00	1.96	4.59
Q4	Care with any provider	32.89	35.17	23.91	25.00	43.48	31.36
	Public HC	14.04	15.25	7.39	16.07	17.39	13.43
	Church HC	3.07	4.87	2.61	1.79	13.04	3.85
	Other PHC provider	3.95	6.99	4.35	2.68	4.35	5.26
	Hospital	10.09	3.18	7.83	2.68	0.00	5.54
	Traditional healer	1.75	5.08	1.74	1.79	8.70	3.38
Total %	Care with any provider	20.3	26.1	17.0	21.1	14.9	22.0
	Public HC	11.4	10.2	5.9	13.5	8.2	9.7
	Church HC	2.3	4.2	2.8	2.0	2.2	3.2
	Other PHC provider	2.1	3.6	2.2	2.0	2.2	2.8
	Hospital	3.2	1.8	2.9	1.0	0.0	2.2
	Traditional healer	1.4	6.4	3.0	2.5	2.2	4.1
Total N	Sick Individuals	1,266	1,144	720	1,041	286	4,457

Note: Other primary health care providers (PHC) include dispensaries and private clinics.

Table 5.8 compares PPS member and non-member provider choice. PPS members are considerably more likely than non-members to go to a public or church-owned health center when sick. PPS members and non-members show a similar likelihood to seek care with traditional healers.

The survey also found that in Kabgayi, 17 percent of sick members went first to the district hospital, not to a health center. This is a significantly higher proportion than members and non-members in the two other districts. As there is no indication for the Kabgayi members to be sicker than other members and therefore in need of a hospital admission, this high hospital admission rate points to frivolous hospital service use and members' ignoring the health centers' gatekeeper function. It is thus highly recommended that members' admission patterns to the Kabgayi hospital are investigated.

**Table 5.8: Comparison of PPS member and non-member choice of provider in pilot districts, in percent (n=3,130)**

Place of Treatment 1st Provider	PPS Membership	Pilot Districts			Total Pilot Districts
		Kabutare	Byumba	Kabgayi	
Care with any provider	Non-members	18.17	21.66	14.30	18.43
	PPS members	77.61	43.49	55.32	48.94***
	Total	19.29	24.43	15.25	20.24
Public health center	Non-members	10.33	8.32	5.31	8.45
	PPS members	56.72	19.16	12.77	23.42***
	Total	11.20	9.70	5.48	9.34
Mission health center	Non-members	1.37	1.60	1.21	1.41
	PPS members	17.91	14.99	21.28	15.93***
	Total	1.68	3.29	1.68	2.27
Other PHC provider (dispensaries, private clinics)	Non-members	1.63	3.74	2.12	2.46
	PPS members	1.49	2.21	2.13	2.11
	Total	1.63	3.54	2.12	2.44
Hospital	Non-members	3.21	1.71	1.62	2.32
	PPS members	1.49	2.70	17.02***	3.84
	Total	3.17	1.83	1.97	2.41
Traditional healer	Non-members	1.63	6.30	4.04	3.79
	PPS members	-	4.18	2.13	3.45
	Total	1.60	6.03	4.00	3.77

Note: T-tests were performed to compare the rates of the insured with the non-insured in the pilot districts.  
 \*\*\* Significant at 1 percent level of significance.

## 5.5 Influence of PPS Membership on Health Care Utilization

Table 5.9 reports probabilities of service use for PPS members and non-members in the three pilot districts. Survey data show that the insured report significantly better access to the modern health care system with a visit probability of 0.45 compared to the non-insured in the pilot districts (0.15 visit probability). This probability of visit by members does not vary by patients' gender, age, or income quartile. Rather, it is determined by patients' geographical access to the health facility (time distance), with those who live in the neighborhood of a health center being significantly more likely to seek care; and by members' health status, with the sick and very sick being three times more likely to seek care than those who are not very sick. Non-members' visit probability is significantly higher for those in highest income quartile (Q4) than non-members in lower income quartiles (Q1–Q3). This leads to the conclusion that non-members' care seeking behavior is driven by their ability to pay the user fees charged by providers.

Section 5.1 found that non-members reported a significantly higher probability of illness than PPS members (see Table 5.2). Interestingly, PPS members who said they were not very sick or were sick reported higher visit likelihood (0.22 and 0.64, respectively) than the average non-insured (0.15). This indicates that PPS membership may have caused sick members to seek care at the onset of

illness. Access to professional care is lowest for the non-insured in the lowest income quartile, who are about four times less likely to seek care than those in the same income group who are insured.

**Table 5.9: Influence of PPS membership on using a professional provider by socio-economic and demographic group in pilot districts**

Patient Characteristics	Pilot Districts	
	PPS Members (n 376)	Non-members (n 3,459)
Sick individuals (n 3,835)	0.45***	0.15
Patient gender		
Female	0.42	0.14
Male	0.50	0.16
Patient age		
6 years and older	0.45	0.13
0-5 years	0.46	0.19
Time from house to health facility		
More than 30 min.	0.33	0.12
Less than 30 min.	0.60***	0.19
Income quartile		
Q 1	0.40	0.06***
Q 2	0.35	0.13***
Q 3	0.49	0.14***
Q 4	0.54	0.26
Self-perceived health status		
Not very sick	0.22	0.05
Sick	0.64	0.15
Very sick	0.61	0.30

Note: Probability of at least one visit to health center or hospital for sick individuals. T-tests were performed to compare total visit rates of the insured with the non-insured in the pilot districts. T-tests were also performed to compare differences within each category of PPS members and non-members.

\*\*\* Significant at 1 percent level of significance.

The logit regression in Table 5.10 estimates the probability of a professional health care visit for PPS members and non-members, and controls for skewness in the data distribution that could have influenced access results presented in Table 5.9. The logit regression coefficient estimates were translated into odds ratios to facilitate interpretation.

Findings show that prepayment has tremendously improved the financial accessibility of plan members to the modern health care system, particularly for women, children, and the poor. In addition to membership in a plan, access to care is determined by patient age, pregnancy, health status, and distance to the health facility, and by the income group of the patient's household. Most significant, PPS members are nearly six times (559 percent) more likely to enter the modern health care system when sick compared to non-members. It is important to note that, in Rwanda, where per capita use rates for health care are very low, the higher utilization by members should not be interpreted as an effect of moral hazard but rather of being able to use necessary basic health services. Health-related indicators significantly influence health seeking behavior, with children under 5 being

92 percent more likely to report a visit than are older patients. Also, pregnant women report 65 percent higher probability to seek care, and the sick individuals who spent four or more days in bed are 96 percent more likely to go to a modern health care provider compared to those who were not that long in bed. Those who live close to the health facility are significantly more likely to seek care (61 percent) than those who live farther away. Patients in the lowest income quartile are far less likely to seek care than those in the highest income quartile.

**Table 5.10: Logit regression results for probability of at least one professional provider visit in pilot districts**

		Probability of visit in pilot districts		
Explanatory Variable	Reference Category Variable	Odds Ratio	S.E.	Sign
Prepayment members	Non-members	6.59***	0.263	0.000
Male patient	Female patient	1.21	0.140	0.170
Patient age 0-5 years	Patient age 6 years and older	1.92***	0.158	0.000
Pregnant in past year	No pregnancy in past year	1.65***	0.248	0.043
Patient spent 4 and more days in bed	Less than 4 days in bed	1.96***	0.139	0.000
Less than 30 min. From hh cell to h-facility	More than 30 min to h-facility	1.61***	0.137	0.000
Household with 5 and more members	Small HH size, less than 5	1.17	0.142	0.277
Household head attended school	HH head did not attend school	0.91	0.141	0.519
Household with cattle	No cattle	1.26	0.162	0.162
Household with radio	No radio	1.33	0.143	0.050
First Income Quartile	Fourth Income Quartile	0.18***	0.230	0.000
Second Income Quartile		0.44***	0.174	0.000
Third Income Quartile		0.46***	0.172	0.000
Ancillary statistics:				
N		1,502		
- 2 Log likelihood		1434.941		
Goodness fit (chi-squared test)		211.744		
Degree of freedom		13		
Nagelkerke R Square		19.3%		

Note: Z-tests were performed to test the probability of enrollment for each characteristic in a logit model.  
 \*\*\* Significant at 1 percent level of significance; \*\* 5 percent level of significance.

While the PPS have significantly increased access to health care for members in all income quartiles, including those who are poor, the relative size of schemes are still too small to produce an increase in access to health care at the level of the district. Thus financial accessibility for the uninsured poor remains an issue. Accordingly, mechanisms to increase PPS enrollment of the poor households should be found.

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## 5.6 Summary

The analysis of sick PPS members' and non-members' service use points to serious access problems to medical care for non-members. The fact that non-members report a higher probability of illness suggests that adverse selection is not an issue in PPS enrollment. Non-members are considerably less likely to visit a modern provider when sick compared to PPS members. The non-insured in the poorest income groups report lowest use rates, while visit rates are similar across all income groups among PPS members. The difference in member and non-member use of health care services are directly related to poor households having to pay for medical care when sick.

Several other findings are noteworthy: PPS members' lower probability to use drugs before going to the health center redirects their behavior away from incomplete drug treatment and toward comprehensive and professional care at a health facility. PPS members most likely went to a public or church-owned health center when sick. Of the sick members in Kabgayi, 17 percent went first to the district hospital. Health centers' gatekeeper function in hospital referrals has to be investigated and strengthened in this district to prevent the frivolous use of costly hospital care.

## 6. Use of Maternal and Child Health Care Services: Members and Non-members

Maternal health care services include prenatal and obstetric services and are provided mainly by nurses in health centers. Preliminary DHS 2000 results for the prefecture of the city of Kigali reveal that 68 percent of births of mothers who live in urban areas take place in a health facility. However, the Ministry of Health estimates that rural women in Rwanda are considerably less likely to give birth in a health facility. Concerns arise when considering that Rwanda reports considerably worse health outcome indicators for maternal and infant health than other sub-Saharan regions (see Table 1.1). Factors such as health center-assisted deliveries and tetanus vaccinations before delivery affect the mother's and child's health and – in the case of Rwanda – could have a beneficial impact on the country's high maternal and infant mortality rate.

### 6.1 Prenatal Consultations

Nurses in public and church-owned health centers provide prenatal care services to pregnant women. In this household survey, 940 women reported pregnancy during the 12 months preceding the interview. Table 6.1 shows that, in Kabgayi and Byumba, PPS members were more likely than non-members to have one prenatal care visit. In contrast, in Kabutare, non-members were more likely than members to have had at least one, and even three prenatal visits. Overall, PPS members are slightly more likely (84.5 percent) to have one prenatal visit compared to non-members (82.5 percent). Generally, fewer women go for three prenatal care visits, and PPS members are more likely to do so (48.3 percent) than non-members (39 percent). However, this difference is not significant.

**Table 6.1: Comparison of PPS member and non-member use of prenatal care\* in all sample districts, in percent (member n=120, non-member n=820)**

Prenatal Care	PPS Membership	Pilot Districts			Non-intervention Districts		Total
		Kabutare	Byumba	Kabgayi	Kibungo	Bugesera	
At least 1 visit	Non-members	77.0	84.7	81.2	83.1	96.3	82.5
	PPS members	58.8	86.3	94.4			84.5
	Total %	76.5	85.0	81.9	83.1	96.3	82.7
At least 3 visits	Non-members	44.3	49.0	23.0	34.6	37.0	39.0
	PPS members	17.6	51.8	50.0			48.3
	Total %	43.6	49.5	24.4	34.6	37.0	39.6

Note: T-tests were performed to compare the rates of the insured with the non-insured in the pilot districts.

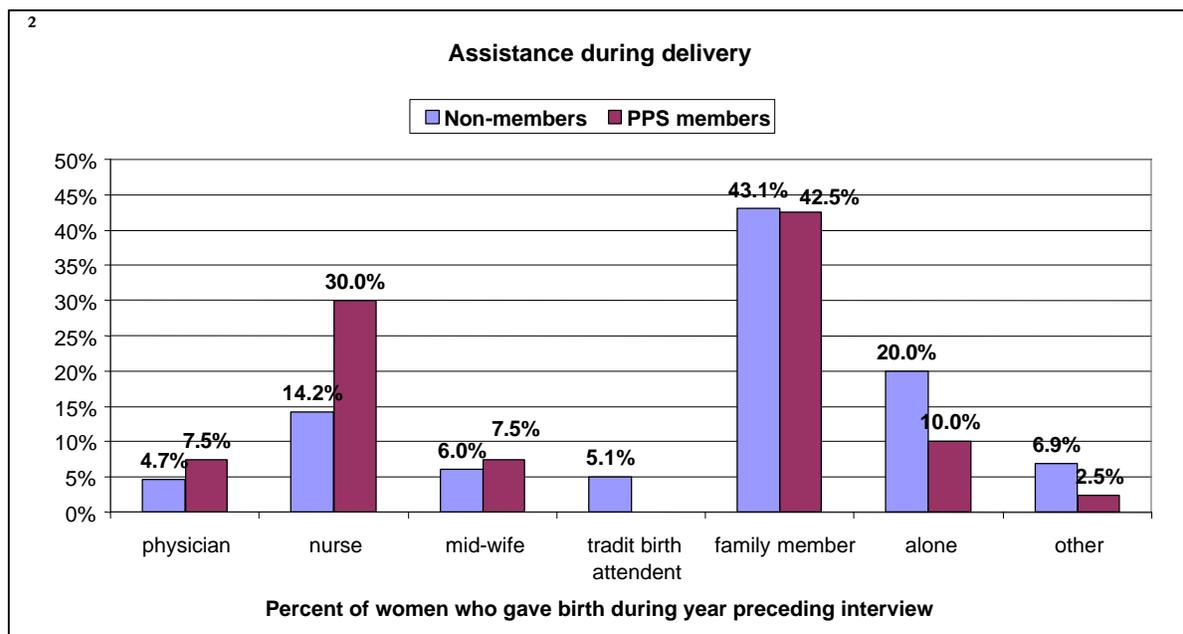
\* Proportion of women who were pregnant in the 12 months preceding interview.

\*\*\* Significant at 5 percent level of significance.

## 6.2 Deliveries

Figure 6.1 shows who helped women to deliver their babies in all sample districts. Members and non-members are most likely assisted by a family member (43 percent). PPS members are twice as likely to receive assistance from a nurse (30 percent) than non-members (14.2 percent). And non-members are twice as likely to deliver without any help (20 percent) than are PPS members (10 percent).

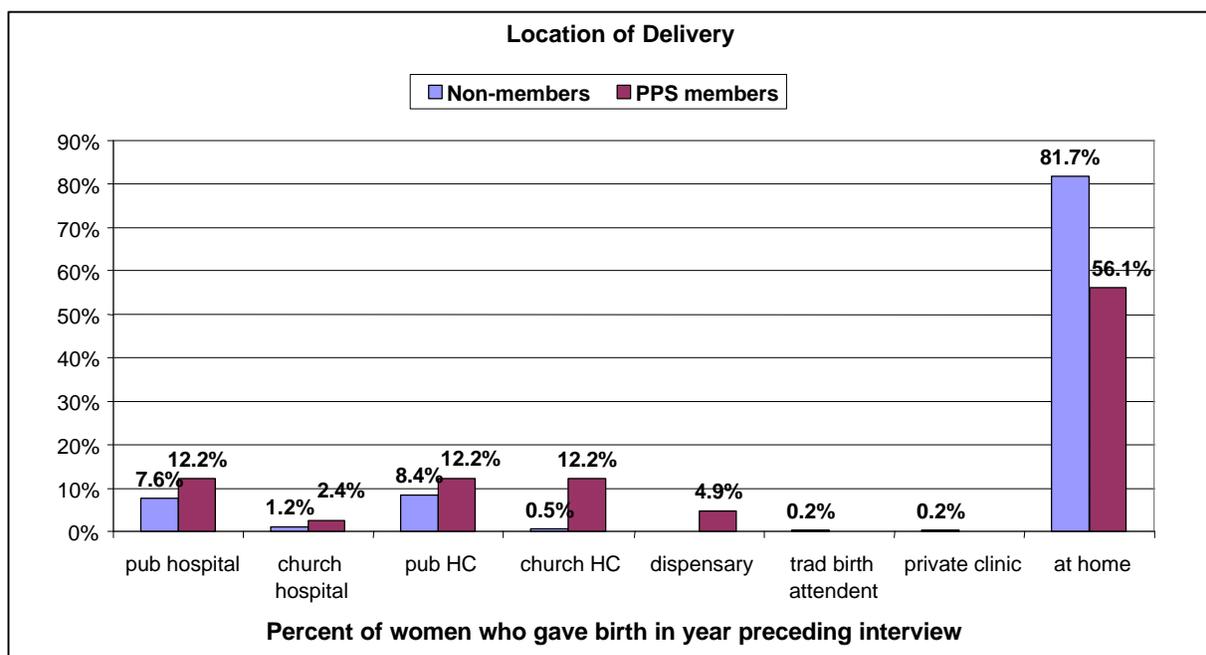
**Figure 6.1: Comparison of type of assistance during delivery for PPS members and non-members (all sample districts, PPS members n=40, non-members n=569)**



Rwandan women are used to delivering their babies at home. The MOH encourages women to deliver their babies in public and church-owned health centers, with professional assistance. Non-insured women pay the health center about RWF 500 to deliver their baby, which does not include drugs and overnight stays if the woman has to remain at the health center for observation. PPS membership entitles PPS women to deliver their babies at the health center without paying any additional fees except the RWF 100 co-payment. Figure 6.2 reveals non-member women are considerably more likely to deliver at home (82 percent) compared to PPS members (56 percent), who were more likely to give birth in public and church-owned health facilities.

With prepayment membership, mothers and babies are considerably more likely to benefit from the Rwandan health system, which will in the long run improve their health status.

**Figure 6.2: Comparison of location of delivery for PPS members and non-members (all sample districts, members n=41, non-members n=569)**



### 6.3 Childhood Immunization

Table 6.2 shows vaccination rates for PPS member and non-member children,<sup>10</sup> based on their household’s socio-economic status and district of residence. Vaccination rates are similar for PPS member and non-member children, with approximately 60 percent of all children vaccinated. Because childhood vaccination is provided free to all children in Rwanda during regular vaccination campaigns organized at the health center, PPS membership provides no further financial incentive to have children immunized.

<sup>10</sup> This household survey included 870 children under the age of 12 months, and 1,935 children between 12 to 59 months. Infants number 113 (13 percent) children 223 (11.5 percent).

**Table 6.2: Childhood immunization rates by income group and PPS membership\*  
(all sample districts)**

Household Characteristics	Vaccin. Received	Pilot Districts			Control Districts		Total
		Kabutare	Byumba	Kabgayi	Kibungo	Bugesera	
<b>Income Quartiles</b>							
Q1	BCG	70.4	57.2	63.8	47.4	36.4	58.4
	DPT1	74.1	58.6	62.8	47.4	36.4	59.4
	DPT3	74.1	55.9	61.7	42.1	27.3	56.8
	Measles	74.1	51.4	57.4	35.1	18.2	52.5
Q2	BCG	61.1	64.9	72.8	50.0	70.6	63.6
	DPT1	61.1	63.6	72.8	47.6	64.7	62.5
	DPT3	60.0	60.4	72.8	48.8	64.7	61.1
	Measles	55.6	59.1	67.0	45.1	52.9	57.6
Q3	BCG	69.6	60.6	70.3	46.5	70.6	62.7
	DPT1	71.7	60.6	70.3	46.5	70.6	63.0
	DPT3	69.6	60.6	66.9	43.7	64.7	61.4
	Measles	68.5	57.9	65.3	38.0	58.8	58.7
Q4	BCG	63.3	59.1	70.9	52.3	37.5	61.4
	DPT1	63.3	58.0	70.9	47.7	37.5	60.5
	DPT3	62.4	57.5	69.8	47.7	25.0	59.6
	Measles	58.7	56.4	66.3	52.3	12.5	57.7
<b>Prepayment Status of Household</b>							
PPS members (n = 223)	BCG	69.2	61.5	64.3			62.3
	DPT1	69.2	61.0	64.3			61.9
	DPT3	69.2	61.5	64.3			62.3
	Measles	69.2	59.9	60.7			60.5
Non-members (n = 1,712)	BCG	65.4	60.3	70.0	48.8	58.5	61.6
	DPT1	66.6	60.1	69.7	47.2	56.6	61.4
	DPT3	65.4	58.0	68.1	45.7	50.9	59.6
	Measles	62.7	55.3	64.3	42.1	41.5	56.3
Total	BCG	65.5	60.5	69.6	48.8	58.5	61.7
	DPT1	66.7	60.3	69.3	47.2	56.6	61.5
	DPT3	65.5	58.7	67.8	45.7	50.9	59.9
	Measles	62.9	56.2	64.1	42.1	41.5	56.8
Total N	345	882	401	254	53	1,935	

\* Proportion of children (12-59 months) who have been vaccinated against BCG, DPT1, DPT3, and measles.

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## 6.4 Summary

Generally, pregnant women in Rwanda show a high rate for a first prenatal care visit. However, prenatal care is more comprehensively provided to women who are PPS members, with a larger proportion of them reporting three visits, than non-members. This follow-up of pregnant women leads to safe motherhood, an issue highly relevant to Rwanda, which has high maternal mortality rates. Mortality rates can also be reduced by having more women seek assistance from professional providers during delivery. PPS membership provides financial access to this assistance. Non-member women are considerably more likely to deliver at home (82 percent) compared to PPS members (56 percent), who most likely delivered their babies in public and church-owned health facilities.

Hence, the MOH and international donors to health care in Rwanda have the opportunity to help women and their children to access maternal and child care by encouraging their participation in prepayment schemes.



## 7. Health Care Expenditures: Members and Non-members

### 7.1 Influence of PPS Membership on Patients' Out-of-pocket Payments per Episode of Illness

Medical providers charge a price for services and drugs provided to patients. Most of the patients interviewed (73 percent) paid for care received; 13 percent paid nothing and 14 percent paid only the co-payment required of prepayment members. Asked about who did the reimbursement, 80 percent of patients stated that either they or a household member paid the bill, 16 percent indicated their prepayment scheme as the payer, and 3.4 percent had received support from a friend or relative. Transactions are essentially monetary, that is, patients hardly ever pay in kind (1.4 percent). Exemptions from paying fees are based on the patient being a PPS member (34 percent), lacking money (25 percent), being a friend or family member from the health facility staff (14 percent), or postponing payment until the patient has money available (11 percent).

Table 7.1 presents total health related out-of-pocket expenditures (including transport costs, co-payments, and prices paid for the drugs and hospital services not covered by the scheme) for each of the different sources of care during an episode of illness. An episode includes care received before visiting a provider, out-of-pocket spending at the first visit, and out-of-pocket spending for other providers. This total health expenditure information is shown for the insured and non-insured sick in pilot districts who reported a professional provider visit, and further broken down for each group by patients' income quartiles.

It was found that per episode of illness, sick members pay on average RWF 497 for the full episode of illness, whereas non-members' out-of-pocket health expenditures per episode of illness with professional visit amount to RWF 1,987 in pilot districts. Illness-related expenditures increase proportionally with patients' income quartile, for both members and non-members, showing that the rich spend more on health than the poor. Members who seek care pay a RWF 100 co-payment per episode of illness at the health center. It is possible that the richer PPS members pay more (RWF 966 at the first provider vs. less than RWF 200 for members in other income groups) because they are willing to pay additional amount for care not covered by the PPS, such as drugs excluded from the MOH essential drug list.

Insurance membership has significantly decreased out-of-pocket spending. This has substantially improved members' access to the modern health care system and therefore changed patients' health care seeking behavior. A comparison of PPS members and non-members by income quartile shows that the poorest non-members pay almost 10 times more for an episode of illness than do PPS members in the same income quartile (Q1). The non-insured spend almost five times more on average on home care and traditional remedies than do the insured, who are more likely to seek quality, professional care. Thus, PPS have not only reduced financial barriers in accessing better quality care, PPS membership has also shifted the demand for health care towards more effective care.

**Table 7.1: Comparison of PPS member and non-member expenditures\* per episode of illness by income group in pilot districts**

Source of care	Income quartile	Average RWF per sick individual with at least one visit to a professional provider in pilot districts	
		Non-members	PPS members
Home & other care	Q1	85	0
	Q2	178	23
	Q3	230	20
	Q4	322	133
	Average	245	52
First provider	Q1	693	112
	Q2	1,356	178
	Q3	1,445	220
	Q4	2,228	966
	Average	1,693	418
Other providers	Q1	262	0
	Q2	27	0
	Q3	42	1
	Q4	22	91
	Average	50	28
Total illness-related expenditure	Q1	1,041	112
	Q2	1,561	201
	Q3	1,717	242
	Q4	2,573	1,190
	Average	1,987***	497
Total N		431	84

\* Includes all expenditures related to visit, e.g., transport, fees, cost of uncovered services.

The log-linear regression in Table 7.2 estimates sick individuals' average health expenditures for the insured and non-insured in pilot districts. It includes individuals with home care only (i.e., without a visit to a provider) as well as individuals who sought care with a health care provider. Findings show that PPS have significantly decreased out-of-pocket spending for the entire episode of illness for sick individuals who are members. Individuals' out-of-pocket health expenditures are positively influenced by the patient's gender (men pay more than women), household size, and use of professional care. Patients classified in the three lower income quartiles report significantly lower out-of-pocket spending for an episode of illness compared to those in the fourth quartile. Also, out-of-pocket spending per episode of illness is significantly negatively influenced if patients live in the health center's vicinity.

**Table 7.2: Log-linear regression results for estimated expenditures per episode of illness in pilot districts**

Explanatory Variable	Reference Category Variable	Out-of-pocket all sick		
		Coeff.	S.E.	P>t
Sick insured members	Sick non-insured in pilot districts	-0.604***	0.141	0.000
Male patient	Female patient	0.056***	0.061	0.000
Patient age 0-5 years	Patient age 6 years and older	-0.006	0.075	0.362
Pregnant in past year	No pregnancy in past year	-0.227	0.120	0.933
Patient spent 4 and more days in bed	Less than 4 days in bed	0.228	0.060	0.057
Less than 30 min. from HH cell to health facility	More than 30 min. to health facility	-0.125***	0.062	0.000
Household with 5 and more members	Small HH size, less than 5	0.111***	0.063	0.045
Household head attended school	HH head, did not attend school	0.262	0.061	0.075
Household with cattle	No cattle	-0.090***	0.075	0.000
Household with radio	No radio	0.258	0.067	0.234
First Income Quartile	Fourth Income Quartile	-0.544***	0.091	0.000
Second Income Quartile		-0.290***	0.085	0.000
Third Income Quartile		-0.183***	0.085	0.001
All sick w/ 1+ professional care visit	All sick without visit	1.645***	0.077	0.030
(Constant)		1.048***	0.101	0.000
Ancillary Statistics:				
N		1,596		
F		52.686		
Degree of freedom		(14 1,582)		
Prob > F		0.000		
R-squared		0.318		

Note: Includes total health related out-of-pocket spending for sick with and without visit. T-tests were performed to test significant difference for each characteristic. \*\*\* Significant at 1 percent level of significance; \*\* 5 percent level of significance.

## 7.2 Impact of Health Care Expenditures on Household Income

The first objective of the MOH was to improve financial accessibility to health care; this included making prepayment schemes accessible to the poor. Asked about their perception of the PPS enrollment fee level, most PPS members interviewed said it was affordable. The fee level was too expensive for 32 percent of PPS members, and easy to pay for 22 percent of households. Members were most likely to pay this annual fee with their own savings (46 percent) or by selling additional agricultural products (16 percent). Other members have joint a tontine (7 percent), or borrowed money (6 percent).

Table 7.3 shows the proportion of households' total income (based on households' expenditures) spent on health by members and non-members according to income quartile. Health expenditures include all treatment costs incurred by households for services received from traditional and modern health care facilities, as well as the prepayment premium paid by PPS members. Households – and

especially those in lower income groups – with prepayment membership spend a significantly larger proportion of their total income on health than do non-member households. This is due to their annual enrollment fee (which can be paid whenever households have money available). However, when sick, their health expenditures are only for the member co-payment, allowing them to access treatment anytime when needed. In contrast, while non-members’ health expenditures are significantly lower than that of members’, their service use also is lower in times of sickness. That is, non-members’ low health expenditure level highlights their financial accessibility problem: they lack the money to pay for medical treatment when needed and therefore avoid seeing health care providers.

**Table 7.3: Comparison of PPS member and non-member annual health expenditures as percent of household income in pilot districts**

Income group (quartiles)	Pilot Districts	
	Non-members	PPS Members
Q1	5.1	20.3
Q2	4.8	8.8
Q3	6.5	4.8
Q4	7.9	5.6
Total %	6.1	9.1***
Total N	2,313	181

Note: T-tests were performed to compare the rates of the insured with the non-insured in the pilot districts.  
 \*\*\* Significant at 5 percent level of significance.

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### 7.3 Summary

Health care providers in Rwanda charge user fees for drugs and services provided, which has caused financial barriers in accessing care among these poor population groups. Prepayment membership has significantly decreased out-of-pocket spending for a full episode of illness for sick members with and without visit, and at the same time has substantially improved members’ access to the modern health care system. This new payment method has changed patients’ health care seeking behavior: non-members spend five times more on home care and traditional remedies compared to PPS members, who are more likely to seek care in the modern health system. Thus, PPS have not only reduced financial barriers in accessing better quality care, they have also shifted the demand for health care towards more effective care.

And yet, because of non-members’ lower service use, the proportion of households’ total income spent on health (including prepayment enrollment fee) is significantly higher for PPS members than for non-members. Although poorest households had a similar likelihood to participate in prepayment schemes, premium levels place a heavy burden on these households. Because of additional administrative demands and capacity that would be required for contribution in installments, such alternatives should be tested before being extended widely. However, the experience in Kabutare, where prepayment membership for the poorest was subsidized, should be considered as a way to increase participation among the lowest income groups and thereby improve equity in financing of medical care.

## 8. Conclusion

This household survey was developed and conducted to evaluate the impact of prepayment schemes in three Rwandan health districts. Findings indicate that in these rural areas, about one-third of households are headed by a single adult, and a similar proportion by women. Household heads are most likely illiterate, and live from subsistence agriculture, which generates cash to pay for consumption of approximately US \$100 per capita per year. The majority of these rural households are equally poor, and their dependency on agricultural production and yield makes them vulnerable to seasonal poverty.

The Rwandan 1998 National Health Accounts have revealed that the country's health sector is largely financed by international assistance (50 percent) and household sources (40 percent), leaving the government to finance the remaining 10 percent. Thus, Rwandan households already finance a large proportion of the country's health sector, by paying out-of-pocket user fees charged by providers in the public and private sector. The population's epidemiological profile, the dismal performance on health indicators, and patients' problematic financial accessibility to medical care show that the way the health sector is financed in Rwanda is not effective. In 1999, this has caused the MOH to pilot-test prepayment schemes as an alternative health financing method. During their first operational year (7/1999-6/2000), PPS in the three districts (Byumba, Kabgayi, and Kabutare) enrolled 88,303 members.

Overall the population living in these rural districts is poor. Very few individuals report higher monetary expenditures: 50 percent of them spend less than US\$4 per capita per month, and overall 90 percent of them dispose of less than US\$16.1 per capita per month. Findings from this household survey show that the major determining factors that influence a household to join a PPS are the level of education of household head, family size, district of residence of the household, distance to the health facility, and radio ownership (indicating wealth and exposure to radio campaigns on PPS), whereas household income was not a significant factor in enrollment.

Findings show that health insurance membership has tremendously improved the financial accessibility of its members to the modern health care system, particularly for women, children, and the poor. Use of health care services is determined by prepayment membership, patient age, pregnancy, patients' health status, the distance to the health facility, and households' income group. Non-members are significantly more likely to report sickness in a two-week period (27 percent) than PPS members (21 percent). However, once sick, prepayment members are six times more likely to enter the modern health care system when sick compared to non-members. Non-members have a much higher likelihood of self-medication and home treatment in lieu of seeking institutional care. And 80 percent of home treatment is provided by traditional healers, raising concerns about non-members' access to and quality of care. Women who are PPS members are twice as likely to be assisted by a nurse during delivery compared to the non-insured women, who have a considerably higher likelihood to deliver their babies at home (82 percent) than PPS member women (56 percent). In addition to improved access, PPS member patients report faster access to care when sick.

The proportion of households' income spent on medical services depends on their medical service use, income status, and prepayment membership. Overall, and because they are less likely to

seek care when sick, non-members spend per year significantly less of their total income on medical care (6.1 percent) than do PPS members (9.1 percent). However, once they are sick and seek care, non-members pay per episode of illness up to four times more (RWF 1,987) compared to PPS members (RWF 497). PPS membership has significantly decreased members' out-of-pocket spending for a full episode of illness and at the same time has substantially improved members' access to medical services. This argument holds for all income groups among PPS members. Non-members in lowest income quartiles continue to report significantly lower use of care compared to those in higher income groups, and compared to PPS members in the same income group.

Despite similar participation rates across all income groups in prepayment schemes, total annual health expenditures, including prepayment enrollment fees, place a heavy financial burden on poorest households. Ways should be found to increase the participation of most vulnerable groups in prepayment schemes, which will lead to better financial accessibility to modern medical care for them. The experience from Kabutare, where the church-financed PPS enrollment for about 3,000 widows and orphans, has exemplified that enrollment among the poorest can be increased in a targeted manner.

Household survey results combined with findings from additional routine and survey data gathered during the prepayment pilot experience support the plan of the MOH to expand prepayment schemes to the remaining health districts in Rwanda, such that all society members have the option to buy and benefit from prepayment membership. Prepayment schemes have successfully responded to the first MOH objective, which is to improve financial accessibility to medical for poorest society members. At the same time, these insurance schemes form solidarity groups, which contribute to positive social capital in a society that is recovering from a civil war. PPS are forms of social cohesion and build a social network between the poor and their health facilities. It is recommended that the Rwandan health financing policy endorses and promotes prepayment as a valuable alternative to the still dominating out-of-pocket user fee payments.

This analysis took place 14 months after prepayment schemes were implemented in Rwanda. Although the data collection during the pilot phase was extensive and included patient exit interview and focus group information as well as routine provider, insurance, and household data, it is too early to conclude if better access to care due to prepayment membership has caused members' health to improve. These schemes are still young and fragile, and future research should evaluate the organizational development within their institutional and market context, as well as their contributions to improved equity in access to professional care.

# Annex A: Questionnaires

## Household Questionnaire

Republic of Rwanda  
Ministry of Health

Partnerships for  
Health Reform (PHR)

### *HOUSEHOLD QUESTIONNAIRE*

AA1 TYPE OF SURVEY

AA2 TYPE OF QUESTIONNAIRE SHEET \_\_\_\_\_ OF \_\_\_\_\_

IDENTIFICATION AND DOCUMENTATION OF INTERVIEW							
IDN01	HEALTH REGION: _____						
IDN02	HEALTH DISTRICT: _____						
IDN03	COMMUNITY: _____						
IDN04	SECTOR: _____						
IDN05	NEIGHBORHOOD: _____						
IDN06	HOUSEHOLD ID NUMBER						
IDN07	NAME OF THE HEAD OF HOUSEHOLD: _____						
DOC1	DATE OF INTERVIEW : DAY: __/__/__ MONTH: __/__/__ YEAR: 2000 __	DAY		MONTH		YEAR	
						0	0
DOC2	NAME OF INTERVIEWER: _____						

DOC3	LEADER OF OBSERVATION TEAM:  _____  _____																	
SAI1	DATE OF DATA ENTRY  DAY: __/__/__ MONTH: __/__/__ YEAR: _2000__				<table border="1"> <thead> <tr> <th colspan="2">DAY</th> <th colspan="2">MONTH</th> <th colspan="2">YEAR</th> </tr> </thead> <tbody> <tr> <td></td><td></td> <td></td><td></td> <td>0</td><td>0</td> </tr> </tbody> </table>		DAY		MONTH		YEAR						0	0
DAY		MONTH		YEAR														
				0	0													
SAI2	NAME OF DATA ENTRY SPECIALIST  _____				<table border="1"> <tr> <td colspan="5"></td> <td></td> </tr> </table>													



M102. RESIDENCE STATUS 1. PRESENT 2. ABSENT 3. VISITOR 9. UNKNOWN	M103. RELATIONSHIP WITH HEAD OF HOUSEHOLD (HOH) 01. HEAD OF HOUSEHOLD 02. SPOUSE OF HOH 03. SON/DAUGHTER OF HOH 04. M'THER/F'THER OF HOH 05. BR'THER/SISTER OF HOH 06. OTHER 07. HOUSEKEEPER 08. NO RELATIONSHIP 99. UNKNOWN	M104. SEX 1. MAN 2. WOMAN	M106. FAMILY STATUS 1. SINGLE 2. MARRIED 3. WIDOW(ER) 4. DIVORCED 5. SEPARATED 6. OPEN RELATIONSHIP 9. UNKNOWN	M107. ATTENDED SCHOOL 1. YES 2. NO  IF NO, GO TO M110	M108. SCHOOL LEVEL 1. ELEMENTARY 2. MIDDLE 3. SECONDARY 4. SUPERIOR  IF SUPERIOR, GO TO M110	M109. GRADE /CLASS COMPLETED 1. 1 <sup>ST</sup> 2. 2 <sup>ND</sup> 3. 3 <sup>RD</sup> 4. 4 <sup>TH</sup> 5. 5 <sup>TH</sup> 6. 6 <sup>TH</sup> 7. 7 <sup>TH</sup> 8. 8 <sup>TH</sup> 9. UNKNOWN
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<p>IF NO, GO TO M201A</p>	<p>CIRCLE CODE "1" OF THE M201C COLUMN AND THE CORRESPONDING NUMBER.</p> <p>YOU MUST COMPLETE ONE QUESTIONNAIRE CURATIVE CARE FOR INDIVIDUALS WITH CODE "1" ENCIRCLED</p>	<p>CIRCLE CODE "1" OF THE M202C COLUMN AND THE CORRESPONDING NUMBER.</p> <p>YOU MUST COMPLETE ONE QUESTIONNAIRE CURATIVE CARE FOR INDIVIDUALS WITH CODE "1" ENCIRCLED</p>	<p>STATUS OF VISITE</p> <ol style="list-style-type: none"><li>1. COMPLETE</li><li>2. NOT AT HOME</li><li>3. DELAYED</li><li>4. REJECTED</li><li>5. OTHER</li></ol>
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## HOUSEHOLD EXPENSES

INTERVIEWER: THE HEAD OF HOUSEHOLD OR HIS SPOUSE MUST BE PRESENT TO RESPOND TO THIS SECTION. MAKE SURE THAT THE PERSON WHO PRIMARILY TAKES CARE OF DAILY EXPENSES FOR THE HOUSEHOLD IS PRESENT DURING THE THE INTERVIEW.

No QUESTION	QUESTIONS \ INSTRUCTIONS	RESPONSES	GO TO	CODES				
M 301	INTERVIEWER: WRITE THE NAME OF THE RESPONDENT: .....							
M 302	WHAT IS THE NUMBER OF THE RESPONDENT?  INTERVIEWER: VERIFY THE NAME AND NUMBER OF THE RESPONDENT IN COLUMNS IDENT8 AND 101 OF THE HOUSEHOLD QUESTIONNAIRE.			<table border="1" style="float: right;"><tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr></table>				
M 303	How often do you go the market in your household: once a day, twice a day, once a week, ...?  INTERVIEWER: READ THE POSSIBILITIES IN THE OPPOSITE BOX BEFORE RECORDING THE RESPONSE OF THE INTERVIEWEE  INTERVIEWER: IN THE TABLE BELOW, CIRCLE THE COLUMN CORRESPONDING TO THE FREQUENCY OF THE SURVEY	01. 1 TIME A DAY 02. 2 TIMES A DAY 03. 1 TIME A WEEK 04. 2 TIMES A WEEK 05. 3 TIMES A WEEK 06. 1 TIME A MONTH 07. 2 TIMES A MONTH 08. OTHER (SPECIFY)  _____		<table border="1" style="float: right;"><tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr></table>				
M 304	On the average, how much do you spend each time in the market excluding goods sold or intended for sale ?	_____ FRW		FRW <table border="1" style="float: right;"><tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr></table>				
	INTERVIEWER: IN THE TABLE BELOW, CIRCLE THE LINE CORRESPONDING TO THE AMOUNT DECLARED.							

AMOUNT DECLARED IN RESPONSE TO QUESTION M304	FREQUENCY OF VISIT TO MARKET IN RESPONSE TO QUESTION M303						
	1 TIME PER DAY	2 TIMES PER DAY	1 TIME PER WEEK	2 TIMES PER WEEK	3 TIMES PER WEEK	1 TIME PER MONTH	2 TIMES PER MONTH
100	3000	6000	400	800	1.200	100	200
150	4500	9000	600	1.200	1.800	150	300
200	6000	12.000	800	1.600	2.400	200	400
300	9000	18.000	1.200	2.400	3.600	300	600
400	12.000	24.000	1.600	3.200	4.800	400	800
500	15.000	30.000	2.000	4.000	6.000	500	1.000
600	18.000	36.000	2.400	4.800	7.200	600	1.200
700	21.000	42.000	2.800	5.600	8.400	700	1.400
800	24.000	48.000	3.200	6.400	9.600	800	1.600
900	27.000		3.600	7.200	10.800	900	1.800
1.000	30.000		4.000	8.000	12.000	1.000	2.000
1.500	45.000		6.000	12.000	18.000	1500	3.000
2.000			8.000	16.000	24.000	2.000	4.000
2.500			10.000	20.000	30.000	2.500	5.000
3.000			12.000	24.000	36.000	3.000	6.000
4.000			16.000	32.000	48.000	4.000	8.000
5.000			20.000	40.000		5.000	10.000
7.500			30.000			7.500	15.000
10.000			40.000			10.000	20.000
20.000						20.000	40.000
40.000						40.000	



<p>M 307</p>	<p>According to the information you provided, your household spends ...READ TOTAL AMOUNT... per month</p> <p>Do you think this amount is correct?</p> <p>INTERVIEWER: IF THE ANSWER IS NO, GO BACK TO QUESTION M306 AND TRY TO FIND OUT WHAT EXPENSES THE RESPONDENT FORGOT TO INCLUDE. THEN RECALCULATE THE AMOUNT IN QUESTION M307 AND REPEAT QUESTION M307 UNTIL THE RESPONDENT'S ANSWER IS YES.</p> <p>IF YES, ENTER THE AMOUNT IN THE CODES COLUMN.</p>			<table border="1" data-bbox="1675 186 1997 245"> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table> <p>FRW</p> <p>MONTHLY HOUSEHOLD EXPENSES</p>					

Nº	QUESTIONS/INSTRUCTIONS	RESPONSES	GO TO	CODE
M308	Do you pay education expenses for any member of your household: tuition, textbooks, copy books, boarding?	1. YES 2. NO		
M309	For how many members of your household do you pay education expenses?	99. UNKNOWN		
M310	Do you pay education expenses monthly, quarterly, or annually?	1. MONTHLY 2. QUARTERLY 3. ANNUALLY 4. OTHER (SPECIFY)		
M311	How much did you pay last for education expenses in your household?	99999. UNKNOWN		
M312	Did you spend money to prevent or cure a sickness, or for delivery in the last month in your household?	1. YES 2. NO----->	M319	
M313	How much did you pay for consultations and treatments to traditional healers in the last month in your household?	99999. UNKNOWN		
M314	How much did you pay for consultations to health centers or hospitals in the last month in your household?	99999. UNKNOWN		
M315	How much did you pay for drugs to health centers or hospitals in the last month in your household?	99999. UNKNOWN		
M316	How much did you pay for drugs to pharmacies in the last month in your household?	99999. UNKNOWN		
M317	How much did you pay for hospitalization to health centers or hospital in the last month in your household?	99999. UNKNOWN		
M318	How much did you pay for other treatments or health (other than consultations, drugs and hospitalization) to health centers or hospital in your last month in your household?	99999. UNKNOWN		

M319	Does a member of the household have a small livestock?	1. YES 2. NO----->	M322	
M320	How many goats does the household have?	_____		
M321	How many sheep does the household have?	_____		
M322	Does a member of the household have a big livestock?	1. YES 2. NO----->	M324	
M323	How many cows does the household have?	_____		
M324	Is there a radio in the household?	1. YES 2. NO		
M325	Is there a bicycle in the household?	1. YES 2. NO		
M326	How many rooms are there in the patient's residence?	_____		
M327	What material was used to build the main rooms in the house where the patient resides?	1. HARD 2. SEMI-HARD 3. CLAY 4. STRAW 5. OTHERS (SPECIFY)		
M328	What is the main material used for the roof of the house where the patient resides?	1. CONCRETE 2. METAL SHEET 3. CLAY 4. STRAW 5. OTHERS (SPECIFY)		
Now, I will ask you questions about prepayment scheme membership.				
M329	INTERVIEWER: VERIFY AT QUESTION M110 IF THE HEAD OF HOUSEHOLD IS A MEMBER OF THE PREPAYMENT SCHEME	1. YES 2. NO		

M330	INTERVIEWER: VERIFY AT QUESTION M110 IF ALL MEMBERS OF THE HOUSEHOLD ARE MEMBERS OF THE PREPAYMENT SCHEME	1. YES, ALL-----→ 2. YES, SOME 3. NO, NONE--→	M332 M340	
M331	Why are some members of the household not enrolled in the prepayment scheme?	_____		
M332	What is the main reason your household is participating in the prepayment scheme?	_____		
M333	How much did you pay to enroll members of the household in the prepayment scheme?	_____		
M334	What do you think of the amount you contributed to the prepayment scheme? Is it <u>easily affordable</u> , <u>somewhat affordable</u> , or <u>unaffordable</u> ?	1. EASY 2. SOMEWHAT 3. UNAFFORDABLE		
M335	How did you gain the money you contributed to the prepayment scheme?	1. OWN MONEY 2. GIFT FROM RELATIVE 3. BORROW 4. TONTINE 5. SALE OF AGRICULURAL GOODS 6. SALE OF POULTRY 7. OTHER (SPECIFY)		
M336	Are sick members of the household covered in the prepayment plan?	1. YES, RARELY 2. YES, FREQUENTLY 3. NO		
M337	When your current membership expires, would you renew it for the following year?	1. YES 2. NO -----→	M339	
M338	What is the highest amount you are able to pay to renew your membership for the following year?	_____	END OF INTERVIEW	
M339	What is the main reason you are choosing not to renew your membership for the following year?	_____		
M340	What is your main reason for choosing not to enroll in the prepayment scheme?	_____		
		FIN INTERVIEW		

M341	Would you enroll in the prepayment scheme next year?	1. YES 2. NO ----->	M343	
M342	What is the highest amount you are able to pay to enroll in the prepayment scheme next year?	9999. UNKNOWN	FIN INTERVIEW	
M343	What is your main reason for choosing not to enroll in the prepayment scheme?	END OF INTERVIEW		

## Curative Care Questionnaire

Republic of Rwanda  
Ministry of Health

Partnerships  
for Health Reform  
(PHR)

# *CURATIVE CARE QUESTIONNAIRE*

AA1 TYPE OF SURVEY

AA2 TYPE OF QUESTIONNAIRE

IDENTIFICATION AND DOCUMENTATION OF INTERVIEW					
IDN01	HEALTH REGION: _____				
IDN02	HEALTH DISTRICT: _____				
IDN03	COMMUNITY: _____				
IDN04	SECTOR: _____				
IDN05	NEIGHBORHOOD: _____				
IDN06	HOUSEHOLD NUMBER				
IDN07	NAME OF HEAD OF HOUSEHOLD: _____				
NMAL	NAME OF PATIENT: _____				
IDN08	PATIENT IDENTIFICATION NUMBER IN THE HOUSEHOLD QUESTIONNAIRE				
DOC1	DATE OF INTERVIEW:	DAY MONTH YEAR			
	DAY: ___/___ MONTH: ___/___ YEAR: ___/___				
DOC2	NAME OF INTERVIEWER: _____				
DOC3	OBSERVATION TEAM LEADER: _____ _____				
SAI1	DATE OF DATA ENTRY	DAY MONTH YEAR			
	DAY: ___/___ MONTH: ___/___ YEAR: ___/___				
SAI2	NAME OF DATE ENTRY SPECIALIST: _____				

IDN01

IDN03

IDN05

IDN06

IDN08

INTERVIEWER:

REMINDER: FOR PATIENTS LESS THAN 15 YEARS OLD, ADDRESS THE QUESTIONS TO THEIR MOTHER OR GUARDIAN.

THE QUESTIONS ARE ASKED AS IF ADDRESSED DIRECTLY TO THE PATIENT. IF THE RESPONDENT IS NOT THE SAME AS THE PATIENT, THE QUESTIONS WILL BE ASKED BY MAKING REFERENCE TO THE PATIENT AS INDICATED THE INTERVIEWER MANUAL.

### SYMPTOMS AND GRAVITY OF SICKNESS

400 We are going to talk about how you felt when the sickness started

#### SYMPTOMS TABLE

No	SYMPTOM	Did you have (SYMPTOM) when the sickness started?	When was the last time you have (SYMPTOM)?		Did the (SYMPTOM) start in the last 15 days?	How many days did you have the (SYMPTOM)?			
401		402		403		404		405	
				MTH	DAY				
01	FEVER								
02	HEAD ACHE								
03	IRRITATION OF THE EYES								
04	STOMACH ACHE								
05	COUGH								
06	WATERY FAECES								
07	BLOOD-STAINED FAECES								
08	VOMITS								
09	WOUND								
10	OTHER: _____								
INTERVIEWER: ASK IF THE PATIENT HAD OTHER SYMPTOMS AND IDENTIFY THE MAIN ONES		1. YES 2. NO (GO TO NEXT SYMPTOM) 9. UNKNOWN (GO TO NEXT SYMPTOM)	1. AUGUST 2. SEPTEMBER 3. OCTOBER 4. BEFORE AUGUST 999. UNKNOWN		1. YES 2. NO 9. UNKNOWN	31 = 31 DAYS OR MORE 99 = UNKNOWN			

IDN01

IDN03

IDN05

IDN06

IDN08

INTERVIEWER: USE THE CALENDAR BELOW TO DETERMINE DATES AND DURATIONS

AUG	SUN	MON	TUE	WED	THU	FRI	SAT
			1	2	3	4	5
	6	7	8	9	10	11	12
	13	14	15	16	17	18	19
	20	21	22	23	24	25	26
	27	28	29	30	31		

SEP	SUN	MON	TUE	WED	THU	FRI	SAT
						1	2
	3	4	5	6	7	8	9
	10	11	12	13	14	15	16
	17	18	19	20	21	22	23
	24	25	26	27	28	29	30

OCT	SUN	MON	TUE	WED	THU	FRI	SAT
	1	2	3	4	5	6	7
	8	9	10	11	12	13	14
	15	16	17	18	19	20	21
	22	23	24	25	26	27	28

No QUESTION	QUESTIONS / INSTRUCTIONS	RESPONSES	GO TO	CODES
406	When did the sickness start?  INTERVIEWER: USE THE CALENDAR ABOVE TO SPECIFY THE DATE GIVEN BY THE RESPONDANT	1. AUGUST 2. SEPTEMBER 3. OCTOBER 4. BEFORE AUGUST 999. UNKNOWN		MONTHS      DAY
407	Did you inquire about treatments for this sickness?	1. YES 2. NO 9. UNKNOWN	..410	
408	Will you continue to search for treatments for the sickness?	1. YES 2. NO 9. UNKNOWN	..410	
409	What day did you receive treatment for the first time?  INTERVIEWER: USE THE CALENDAR ABOVE TO SPECIFY THE DATE GIVEN BY THE RESPONDENT	1. AUGUST 2. SEPTEMBER 3. OCTOBER 4. BEFORE AUGUST 999. UNKNOWN		MONTHS      DAY

IDN01

IDN03

IDN05

IDN06

IDN08

No QUESTION	QUESTIONS / INSTRUCTIONS	RESPONSES	GO TO	CODES
410	Before receiving treatments, did you think the sickness was not serious, was serious, was very serious, or you did not know?	1. NOT SERIOUS 2. SERIOUS 3. VERY SERIOUS 4. NE POUVAIT PAS 9. UNKNOWN		
411	What was your main activity in the last month?	1. FARMER 2. GOVERNMENT WORKER 3. EMPLOYEE (COMPANY) 4. SHEPHERD 5. FISHERMAN 6. STUDENT..... 7. MINOR ..... 8. OTHER (SPECIFY) _____ 9. UNKNOWN	..414  ..414	
412	In the last two weeks, did you have to interrupt or stop your main activity due to the sickness?	1. YES 2. NO 9. UNKNOWN	...414	
413	How many days was main activity interrupted due to the sickness?	_____ 99. UNKNOWN		
414	In the last two weeks, did you stay in bed due to the sickness?	1. YES 2. NO 9. UNKNOWN	..416	
415	How many days did you stay in bed due to the sickness?	_____ 99. UNKNOWN		

IDN01

IDN03

IDN05

IDN06

IDN08

**ATTENTION**

INTERVIEWER: FROM QUESTION 415 TO 421, THE INFORMATION WILL RELATE ONLY TO TREATMENTS RECEIVED AT HOME BEFORE MAKING A VISIT TO THE HEALTH CENTER OR AN OUTSIDE TRADITIONAL HEALER

INTERVIEWER: (READ TO RESPONDENT) I AM NOW GOING TO ASK QUESTIONS ABOUT TREATMENTS RECEIVED AT HOME TO CURE YOUR ILLNESS BEFORE MAKING A VISIT TO THE HEALTH CENTER.

416	In the last two weeks, did you receive treatment at home by a health worker (doctor, nurse, ...), a traditional healer, or a friend?	1. YES 2. NO 9. UNKNOWN	..420 ..420	
417	Who came to your house to provide treatments?	1. DOCTOR 2. NURSE 3. TRADITIONAL MIDWIFE 4. HEALER 5. OTHER (SPECIFY) _____ 9. UNKNOWN		
418	Did you pay the person you came to the house to provide the treatment? With money or goods?	1. YES, WITH MONEY 2. YES, WITH GOODS 3. NO..... 999. UNKNOWN .....	..420 ..420	
419	How much money did you pay the person who treated you at home?  INTERVIEWER: IF THE PAYMENT WAS MADE IN GOODS, ESTIMATE THE MONETARY VALUE OF THE PAYMENT.	_____ 9999. UNKNOWN		FRW
420	Did you take any drugs you have at home in the last two weeks?	1. YES 2. NO 9. UNKNOWN		

IDN01

IDN03

IDN05

IDN06

IDN08

No QUESTION	QUESTIONS / INSTRUCTIONS	RSEPNSES	GO TO	CODES
421A	Did you send someone to buy or did you yourself buy any drugs to treat your illness in the last two weeks?	1. YES 2. NO 9. UNKNOWN	..423	
421B	Where were the drugs purchased?	1. PHARMACY 2. MAGENDU 3. IN THE MARKET 4. HEALTH CENTER 5. HEALER 6. OTHER (SPECIFY) _____ 9. UNKNOWN		
422	How much money did you spend on the drugs in the last two weeks?	_____ 9999. UNKNOWN	...414	FRW
<b>ATTENTION</b>				
INTERVIEWER: IN THIS SECTION, THE INFORMATION WILL RELATE TO TREATMENTS RECEIVED OUTSIDE OF THE HOUSE IN THE LAST TWO WEEKS.				
423	Did you visit a doctor, a nurse, a healer, etc. outside of the house ? Did you go to a health center ... to treat your illness in the last two weeks?	1. YES 2. NO 9. UNKNOWN	..462	

IDN01

IDN03

IDN05

IDN06

IDN08

No QUESTION	QUESTIONS / INSTRUCTIONS	RESPONSES	GO TO	CODES
424	Where did you go for treatment outside of the house?	01. PUBLIC HOPITAL 02. CERTIFIED HOPITAL 03. PUBLIC HEALTH CENTER 04. CERTIFIED HEATH CENTER 05. DISPENSARY 06. TRADITIONAL HEALER 07. PRIVATE CLINIC 08. HOME PRACTICE 09. OTHER (SPECIFY) _____ 99. UNKNOWN		
425	What is your primary reason for deciding to go to ... HEALTH CENTER INDICATED IN QUESTION 424... ?	1. LESS EXPENSIVE 2. CLOSE BY 3. COMPETENT PERSONNEL 4. HABIT 5. WELL EQUIPED IN MATERIALS AND DRUGS 6. RELIGIOUS OR TRADITIONAL REASONS 7. PREFERRED PPS CENTER 8. OTHER (SPECIFY) _____ 99. UNKNOWN		

IDN01

IDN03

IDN05

IDN06

IDN08

No QUESTION	QUESTIONS / INSTRUCTIONS	RESPONSES	GO TO	CODES
426	<p>What do you think of the availability of drugs at this location ... HEALTH CENTER INDICATED IN QUESTION 424... ?</p> <p>INTERVIEWER: READ THE POSSIBLE ANSWERS IN THE NEXT BOX BEFORE RECORDING THE CORRESPONDENT'S RESPONSE.</p>	<p>1. THEY <u>RARELY</u> HAVE DRUGS</p> <p>2. THEY <u>OCCASIONALLY</u> HAVE DRUGS</p> <p>3. THEY <u>ALWAYS</u> HAVE DRUGS</p> <p>4. OTHER (SPECIFY)</p> <p>_____</p> <p>9. UNKNOWN</p>		
427	<p>Who was the main person that provided the treatments for you during your first visit to the ... HEALTH CENTER INDICATED IN QUESTION 424... ?</p>	<p>1. DOCTOR</p> <p>2. NURSE</p> <p>3. TRADITIONAL MIDWIFE</p> <p>4. HEALER</p> <p>5. OTHER (SPECIFY)</p> <p>_____</p> <p>9. UNKNOWN</p>		
428	<p>According to this person, what was your sickness?</p>	<p>01. MALARIA</p> <p>02. DIARRHOEA</p> <p>03. MEASLES</p> <p>04. PNEUMONIA</p> <p>05. FLU</p> <p>06. WHOOPING COUGH</p> <p>07. GHONORRHEA</p> <p>08. CONJUNCTIVITIS</p> <p>09. ACCIDENT</p> <p>10. COLD</p> <p>11. OTHER (SPECIFY)</p> <p>_____</p> <p>99. UNKNOWN</p>		

IDN01

IDN03

IDN05

IDN06

IDN08

No QUESTION	QUESTIONS / INSTRUCTIONS	RESPONSES	GO TO	CODES
429	How far away from your house is the first health center you visited?  INTERVIEWER: SPECIFY THE HEALTH CENTER INDICATED IN QUESTION 424	1. Less than 2 km 2. 2 – 4 km 3. 4 – 6 km 4. 6 – 8 km 5. 8 – 10 km 6. 10 km and more 9. UNKNOWN		
430	What form of transportation did you use to get to the first health center you visited?  INTERVIEWER: SPECIFY THE HEALTH CENTER INDICATED IN QUESTION 424  INDICATE THE TWO BASIC MEANS OF TRANSPORTATION. IF HE/SHE USED ONLY ONE, RECORD THAT TWICE.	1. BY FOOT ..... 2. CAR 3. BUS OR TAXI 4. CANOE 5. BICYCLE / MOTORCYCLE 6. OTHER (SPECIFY)  9. UNKNOWN	..432 IF BY FOOT ONLY	
431	How much did you and those who accompanied you, pay for transportation (round-trip) to get to the first location where you received treatment?	9999. UNKNOWN		FRW
432	Did you and those who accompanied you spend money on food and lodging?	1. YES 2. NO..... 9. UNKNOWN	..434	
433	How much did you and those who accompanied you spend on food and lodging?	9999. UNKNOWN		FRW

IDN01

IDN03

IDN05

IDN06

IDN08

No QUESTION	QUESTIONS / INSTRUCTIONS	RESPONSES	GO TO	CODES
434	How much time did it take to arrive at the first health center you visited?	1. Less than 30' 2. 30 – 60' 3. 1h – 1h30 4. 1h30 – 2h 5. 2h00 – 2h30 6. 2h30 – 3h00 7. More than 3h00 9. UNKNOWN		
435	After arriving at the health center, how long did you wait before consultation with a member of the health personnel?  INTERVIEWER: SPECIFY THE HEALTH CENTER INDICATED IN QUESTION 424	1. Less than 30' 2. 30 – 60' 3. 1h – 1h30 4. 1h30 – 2h 5. 2h00 – 2h30 6. 2h30 – 3h00 7. More than 3h00 9. UNKNOWN		
436	Were you hospitalized in this health center?  INTERVIEWER: SPECIFY THE HEALTH CENTER INDICATED IN QUESTION 424	1. YES 2. NO..... 999. UNKNOWN	..438	
437	For how many days were you hospitalized in this health center?  INTERVIEWER: SPECIFY THE HEALTH CENTER INDICATED IN QUESTION 424	_____ 99. UNKNOWN		
438	Were you advised to be hospitalized somewhere else?	1. YES 2. NO 9. UNKNOWN		

IDN01

IDN03

IDN05

IDN06

IDN08

No QUESTION	QUESTIONS / INSTRUCTIONS	RESPONSES	GO TO	CODES
439	How many times did you go to this health center for treatment in the last two weeks?  INTERVIEWER: SPECIFY THE HEALTH CENTER INDICATED IN QUESTION 424	_____ 99. UNKNOWN		
440A	Did you receive a prescription from this health center in the last two weeks?	1. YES 2. NO 9. UNKNOWN		
440B	Did you pay or did someone else pay for the treatments you received at this health center?  INTERVIEWER: SPECIFY THE HEALTH CENTER INDICATED IN QUESTION 424	1. YES 2. NO..... 3. NO, MEMBER OF PPS 9. UNKNOWN	..455	
441	Who paid for the treatments: yourself, someone in your household, a different relative, a friend, the company you work for, or somebody else?	1. PATIENT OR MEMBER OF HOUSEHOLD 2. AN OUTSIDE RELATIVE 3. A FRIEND 4. EMPLOYER OF PATIENT 5. PPS (MUTUELLE) 6. OTHER (SPECIFY) _____ 9. UNKNOWN		
442	Did you pay for each consultation or just the first time you visited the health center?	1. EACH CONSULTATION 2. 1 <sup>ST</sup> CONSULTATION 3. OTHER (SPECIFY) _____ 9. UNKNOWN		

IDN01

IDN03

IDN05

IDN06

IDN08

No QUESTION	QUESTIONS / INSTRUCTIONS	RESPONSES	GO TO	CODES
443	Was the price of drugs included or did you pay for them separately?	1. DRUGS INCLUDED 2. DRUGS SEPARATE 3. OTHER (SPECIFY) _____ 9. UNKNOWN		
444	Was the price of medical exam included or did you pay for it separately?	1. EXAM INCLUDED 2. EXAM SEPARATE 3. OTHER (SPECIFY) _____ 9. UNKNOWN		
INTERVIEWER: REPEAT THE ANSWER TO QUESTION 439: NUMBER OF CONSULTATIONS AT THE FIRST HEALTH CENTER VISITED				

IDN01

IDN03

IDN05

IDN06

IDN08

Now we would like to discuss payments made for drugs, exams, and other services during each consultation in the last two weeks.

**TABLE: PAYMENTS AT THE FIRST HEALTH CENTER VISITED**

CONSULTATION		How much did you pay for consultation?				Did you receive any drugs during the consultation?		How much did you pay for the drugs?				Did they perform any exams?		How much did you pay for the exams?				Did you receive other services?		How much did you pay for the other services?			
445		446				447		448				449		450				451		452			
1	1 <sup>ST</sup> VISIT																						
2	2 <sup>ND</sup> VISIT																						
3	3 <sup>RD</sup> VISIT																						
4	4 <sup>TH</sup> VISIT																						
5	5 <sup>TH</sup> VISIT																						
6	6 <sup>TH</sup> VISIT																						
		FRW				1. YES 2. NO (GO TO 449)		FRW				1. YES 2. NO (GO TO 451)		FRW				1. YES 2. NO (GO TO NEXT LINE)		FRW			

No QUESTION	QUESTIONS / INSTRUCTIONS	RESPONSES	GO TO	CODES
453	Did you have to pay in goods for the treatments received?	1. YES 2. NO..... 9. UNKNOWN	..456	
454	What was the monetary value of the goods given in exchange for the treatments received?	_____		FRW
		9999. UNKNOWN		

IDN01

IDN03

IDN05

IDN06

IDN08

No QUESTION	QUESTIONS / INSTRUCTIONS	RESPONSES	GO TO	CODES	
455	Why didn't you pay for the treatments received?  INTERVIEWER: RECORD THE FIRST ANSWER OF THE RESPONDANT	1. FREE CARE 2. I DON'T HAVE THE MEANS 3. I'M A FRIEND OR FAMILY MEMBER OF THE HEALTH WORKER 4. I'LL PAY WHEN I FIND THE MEANS 5. MEMBER OF PPS 6. OTHER (SPECIFY)  9. UNKNOWN			
456	Did you visit other health centers, health worker, or traditional healer during the same illness in the last two weeks?	1. YES 2. NO..... 9. UNKNOWN	FIN		
INTERVIEWER: INDICATE IN ORDER THE OTHER HEALTH CENTERS VISITED AFTER THE FIRST VISIT? HOW MUCH MONEY DID THE PATIENT PAY IN EACH CENTER FOR CONSULTATIONS? DRUGS? AND SERVICES?					
<b>TABLE: PAYMENTS MADE AT OTHER HEALTH CENTERS</b>					
ORDER OF VISIT TO OTHER HEALTH CENTERS (HC)	What type of health center? (SEE CODE BELOW)	How much did you pay for consultations?  9999. UNKNOWN	How much did you pay for drugs? 8888. DIDN'T RECEIVE DRUGS 9999. UNKNOWN	How much did you pay for other services? 8888. NO OTHER SERVICE 9999. UNKNOWN	Did you visit any other health center?  1. YES 2. NO
<b>457</b>	<b>458</b>	<b>459</b>	<b>460</b>	<b>461</b>	<b>462</b>
2	2 <sup>ND</sup> HC				
3	3 <sup>RD</sup> HC				
4	4 <sup>TH</sup> HC				
<b>TYPE OF HEALTH CENTER:</b>					
01. PUBLIC HOSPITAL		06. HEALTH POST			
02. CERTIFIED HOSPITAL		07. PRIVATE CLINIC			
03. PUBLIC HEALTH CENTER		08. TRADITIONAL HEALER			
04. CERTIFIED HEALTH CENTER		09. OTHER (SPECIFY)			
05. DISPENSARY		99. UNKNOWN			

END OF INTERVIEW

## Preventive Care Questionnaire

Republic of Rwanda  
Ministry of Health

Partnerships  
for Health Reform  
(PHR)

### PREVENTIVE CARE QUESTIONNAIRE

AA1 TYPE OF SURVEY

AA2 TYPE OF QUESTIONNAIRE

IDENTIFICATION AND DOCUMENTATION OF INTERVIEW			
IDN01	HEATH REGION: _____		
IDN02	HEALTH DISTRICT: _____		
IDN03	COMMUNITY: _____		
IDN04	SECTOR: _____		
IDN05	NEIGHBORHOOD: _____		
IDN06	HOUSEHOLD NUMBER		
IDN07	HEAD OF HOUSEHOLD: _____		
FEM	NAME OF WIFE: _____		
IDN08	IDENTIFICATION NUMBER OF THIS INDIVIDUAL IN THE HOUSEHOLD QUESTIONNAIRE		
DOC1	DATE OF INTERVIEW :	DAY MONTH YEAR	
DOC2	DAY : __/__/__ MONTH : __/__/__ YEAR : 2000 __		
DOC3	NAME OF INTERVIEWER: _____		
	OBSERVATION TEAM MANAGER:		
	_____		
SAI1	DATE OF ENTRY	DAY MONTH YEAR	
	DAY : __/__/__ MONTH : __/__/__ YEAR : 2000 __		
SAI2	NAME OF DATA ENTRY SPECIALIST		

IDN01

IDN03

IDN05

IDN06

IDN08

500 INTERVIEWER: HAS THE WOMAN BEEN PREGNANT IN THE LAST 12 MONTHS?  
 REPEAT ANSWER TO QUESTION 202B  
 IF 202B=1 (GO TO 501)  
 IF 202B=2 (GO TO 600)

I am going to ask you questions about health care received during your pregnancy.  
 If you have already delivered, I will begin with questions related to the conditions of the delivery.

No QUESTION	QUESTIONS \ INSTRUCTIONS	REPOSSES	GO TO	CODES
501	Are you still pregnant?	1. YES..... 2. NO 9. UNKNOWN	..511	
502	What was the outcome of your last pregnancy?	1. BORN ALIVE 2. STILLBORN 3. VOMITING/ MISCARRIAGE. 9. UNKNOWN	..511	
503	Where did you deliver the baby?	01. PUBLIC HOPITAL 02. CERTIFIED HOPITAL 03. PUBLIC HEALTH CENTER 04. CERTIFIED HEATH CENTER 05. DISPENSARY 06. TRADITIONAL MIDWIFE 07. PRIVATE CLINIC 08. AT HOME 09. OTHER (SPECIFY) _____ 99. UNKNOWN		

IDN01

IDN03

IDN05

IDN06

IDN08

No QUESTION	QUESTIONS \ INSTRUCTIONS	RESPONSES	GO TO	CODES
504	Who assisted you during the delivery?	1. DOCTOR 2. NURSE 3. MIDWIFE 4. TRADITIONAL DELIVERY 5. FAMILY MEMBER 6. NO ASSISTANCE 7. OTHER (SPECIFY) _____ 9. UNKNOWN		
505	What is your main reason for deciding to give birth at that location?  INTERVIEWER: SPECIFY THE LOCATION OF THE DELIVERY IN QUESTION 503. READ THE LIST OF REASONS PROVIDED IN THE NEXT BOX.	1. LESS EXPENSIVE 2. CLOSE BY 3. COMPETENT PERSONNEL 4. HABIT 5. WELL EQUIPED IN MATERIALS AND DRUGS 6. RELIGIOUS OR TRADITIONAL REASONS 7. PREFERRED PPS CENTER 8. OTHER (SPECIFY) _____ 9. UNKNOWN		
506	In the future, would you like to give birth at the same location?  INTERVIEWER: SPECIFY THE LOCATION OF THE DELIVERY IN QUESTION 503.	1. YES 2. NO 9. UNKNOWN		
507	How long does it take to get to the location where you gave birth?  INTERVIEWER: SPECIFY THE LOCATION OF THE DELIVERY IN QUESTION 503.	888. DELIVERY AT HOME 999. UNKNOWN		1. MINUTES 2. HEURE

IDN01

IDN03

IDN05

IDN06

IDN08

No QUESTION	QUESTIONS \ INSTRUCTIONS	RESPONSES	GO TO	CODES
508	Did you pay anything for the delivery?	1. YES, MONEY..... 2. YES, GOODS..... 3. NO 4. NO, MEMBER OF PPS 9. UNKNOWN	..510 ..510	
509	Why didn't you pay for the delivery?  INTERVIEWER: RECORD THE FIRST ANSWER OF THE RESPONDENT	1. TREATMENT IS FREE 2. I DON'T HAVE THE MEANS 3. FRIEND OR FAMILY OF THE HEALTH WORKER 4. I'LL PAY WHEN I HAVE IT 5. MEMBER OF PPS 6. OTHER (SPECIFY) _____ 9. UNKNOWN	511	
510	How much did you pay for the delivery?  INTERVIEWER: IF PAYMENT IN GOODS, ESTIMATE MONETARY VALUE OF PAYMENT	_____ 9999. UNKNOWN		FRW
511	During the pregnancy, were you registered in a prenatal consultation program?	1. YES 2. NO..... 9. UNKNOWN.....	..600 ..600	
512	Where did you go for the prenatal consultations?	01. PUBLIC HOPITAL 02. CERTIFIED HOPITAL 03. PUBLIC HEALTH CENTER 04. CERTIFIED HEATH CENTER 05. DISPENSARY 06. TRADITIONAL MIDWIFE 07. PRIVATE CLINIC 08. AT HOME 09. OTHER (SPECIFY) _____ 99. UNKNOWN		

IDN01

IDN03

IDN05

IDN06

IDN08

No QUESTION	QUESTIONS \ INSTRUCTIONS	REPOSSES	GO TO	CODES
513	<p>What is your primary reason for choosing to do the consultations at that location?</p> <p>INTERVIEWER: SPECIFY LOCATION INDICATED IN QUESTION 512. READ THE LIST OF REASONS IN THE NEXT BOX.</p>	<p>1. LESS EXPENSIVE 2. CLOSE BY 3. COMPETENT PERSONNEL 4. HABIT 5. WELL EQUIPED IN MATERIALS AND DRUGS 6. RELIGIOUS OR TRADITIONAL REASONS 7. PREFERRED PPS CENTER 8. OTHER (SPECIFY) _____</p> <p>9. UNKNOWN</p>		
514	<p>How long does it take to get to the consultations site?</p> <p>INTERVIEWER: SPECIFY LOCATION INDICATED IN QUESTION 512.</p>	<p>1. Less than 30' 2. 30 – 60' 3. 1h – 1h30 4. 1h30 – 2h 5. 2h00 – 2h30 6. 2h30 – 3h00 7. more than 3h00 9. Unknown</p>		
515	<p>Did you pay anything for your health card?</p>	<p>1. YES, MONEY..... 2. YES, GOODS..... 3. NO 4. NO, MEMBER OF PPS 9. UNKNOWN</p>	<p>..517 ..517</p>	
516	<p>How much did you pay for the health card?</p>	<p>_____</p> <p>9999. UNKNOWN</p>		FRW
517	<p>Other than the health card, did you pay for the consultations during your pregnancy?</p>	<p>1. YES 2. NO ..... 999. UNKNOWN</p>	<p>...519</p>	
518	<p>How much did you pay for each prenatal consultation?</p>	<p>_____</p> <p>9999. UNKNOWN</p>		FRW
519	<p>How many prenatal consultation did you have during the pregnancy?</p>	<p>_____</p> <p>99. UNKNOWN</p>		

IDN01

IDN03

IDN05

IDN06

IDN08

600 INTERVIEWER: DOES THE WOMAN HAVE A CHILD (LESS THAN 5 YEARS OLD) LIVING WITH HER. REPEAT ANSWER TO QUESTION 202A  
 IF 202A=1( GO TO 601)  
 IF 202= 2 END THE INTERVIEW AND GO TO PREVENTIVE CARE.

No QUESTION	QUESTIONS\INSTRUCTIONS	RESPONSES	GO TO	CODES
601	How many children (less than 5 years old) do you have and live with you?	_____		

9. UNKNOWN

Now I am going to ask you questions about the health care the children who live with you received when they were babies, starting with your last child.

INTERVIEWER: START FILLING IN THE TABLE BY ASKING THE WOMAN:

What's the name of your last child?

FOR THE NEXT LINES? ASK THE WOMAN:

What the name of the immediate older brother or sister? .... NAME OF THE CHILD ON THE PRECEDING LINE

	NAME OF CHILD	Year of birth... Name ...	Month of birth.... Name ...	NAME... Is it a boy or a girl ?	NAME... Is there a birth certificate or paper showing the date of birth?	NAME... Is there a health card ?
602	603	604	605	606	607	608
1						
2						
3						
4						
IF THE YEAR OF BIRTH IS BEFORE 1995, RECORD THE YEAR AND GO TO 609.			01. JAN 06. JUN 11. NOV	1. BOY 2. GIRL	1. YES 2. NO	HEALTH CARD 1. SEEN 2. NOT SEEN

999. UNKNOWN	02. FEB 07. JUL 12. DEC  03. MAR 08. AUG 99. UNKNOWN  04. APR 09. SEP  05. MAY 10. OCT			
--------------	----------------------------------------------------------------------------------------------------------------------------	--	--	--

IDN01

IDN03

IDN05

IDN06

IDN08

**INTERVIEWER:**

REQUEST THE HEALTH CARD OF EACH CHILD AND RECORD THE VACCINATION DATES ON THE CORRESPONDING LINES.  
 FILL IN THE CORRESPONDING LINE OF EACH CHILD WHERE THE ANSWER TO QUESTION 608 IS « SEEN ». IF A VACCINATION  
 DATE IS NOT INDICATED, WRITE 99 IN THE « DAY » COLUMN AND GO TO THE NEXT.

**VACCINATIONS TABLE**

LI	BCG			DTCOQ1			DTCOQ2			DTCOQ3			POLIO1			POLIO2			POLIO3			ROUGEOLE		
	DAY	MTH	YEAR	DAY	MTH	YEAR	DAY	MTH	YEAR	DAY	MTH	YEAR	DAY	MTH	YEAR	DAY	MTH	YEAR	DAY	MTH	YEAR	DAY	MTH	YEAR
<b>E</b>	609J	609M	609A	610j	610m	610a	611J	611M	611A	612J	612M	612A	613J	613M	613A	614J	614M	614A	615J	615M	615A	616J	616M	616A
1																								
2																								
3																								
4																								

END OF INTERVIEW ON PREVENTIVE HEALTH CARE

# Annex B: Methodology Annex

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## Survey Sampling Plan

The variability of the size (number of households by cell) of the primary sample units (PSU) of the DHS in the three stratas is very large. Therefore, to draw PSU, we will subdivide the cells into sub-cells of almost equal size and proceed to a two-degrees draw:

In the first degree, the cells (PSU) are drawn with probability of selection proportional to the number of sub-cells in the cell

In the second degree, a sub-cell is selected among the selected cell in the first draw

All the households of the sub-cell selected in the second draw are included in the sample.

### Selection Probability

In a given strata X:

The number of cells in the strata is  $C_x$

The number of households in cell  $i$  of strata  $x$  is  $M_{xi}$

The number of sub-cells in cell  $i$  of strata  $x$  is  $SC_{xi}$

Where  $SC_{xi} = M_{xi}/110$

We have to draw  $M_x$  households for inclusion in the sample of strata  $x$  (see Table 2.2). Having taken the option to include all the households of sub-cells to be drawn in the second degree in the sample, the number of sub-cells to include in the sample is:

$$SC_x = M_x/110$$

The probability to include a cell  $i$  of strata  $x$  in the first draw from the list of PSU of the DHS is:

$$(1) P_{1xi} = SC_x * (SC_{xi}/\sum_i SC_{xi}) = (M_x/110) * (M_{xi}/\sum M_{xi})$$

The probability to include a sub-cell in the sample in the second draw at the level of cells selected in the first draw is:

$$(2) P_{2xi} = 1/SC_{xi} = 110/M_{xi}$$

Therefore, the probability to select a household in strata  $x$  is:

$$(3) P_x = P_{1xi} * P_{2xi} = (M_x/\sum_i M_{xi})$$

It will be necessary to multiply  $P_x$  by the sampling fraction of the PSU of the DHS to have the final weight of households for each cell.

---

## Regression Models

Three models are used to estimate first, the probability to buy health insurance for specific population groups in the three pilot districts; second, the probability of using basic health care services by the insured and non-insured population groups in pilot districts; and third, the estimated out-of-pocket health expenditures per episode of illness for all sick individuals and for those who sought professional care, based on a set of explanatory variables. For each categorical variable used in the three models, one category has been selected as a reference category. Odds ratios are estimated in the logit regression models for each category to estimate the factor that measures the magnitude of the difference in relation to the reference category. Interaction effects were tested for significance.

### Model 1: Demand for Health Insurance

The following model estimates the probability of PPS enrollment for households in pilot districts. The objective is to determine if the poorest among the poor buy basic health insurance. The willingness to join PPS is a discrete choice – to join or to not join. A logit regression model is used to determine households' PPS enrollment probability, and the extent to which this decision is influenced by specific socio-demographic and economic characteristics. The hypothesis to be tested is that the PPS member and non-member households do not differ in their socio-economic characteristics. In a logit regression, the dependent variable “demand for insurance”  $D_i$ , will equal 1 if individuals buy insurance, or zero otherwise. Formally, the logit model can be written as a linear function of the explanatory variables:

$$(1) L_i = b_1 + b_2 X_{2i} + \dots + b_k X_{ki}$$

and

$$(2) P_i (\text{D for PPS membership}) = 1 / (1 + 1/e^{L_i})$$

The second equation shows that the conditional probability to buy insurance  $P_i$  is a non-linear function of the explanatory variables  $X_i$ , which represents a series of attributes that are assumed to have caused a household to buy health insurance membership in the three pilot districts. We will estimate the unknown coefficients  $b_i$  which are the weights to each of the households' socio-demographic and economic characteristics in the probability that  $D_i = 1$  for given  $X_i$ . Insurance was only an option for those households who live in pilot districts. Therefore, the logit regression was performed with household survey data from pilot districts only. The household head is the unit of analysis.

### Model 2: Access to the Modern Health Care System

Patients' health seeking behavior was measured for those individuals who reported sickness during the two weeks preceding the interview in the household survey, and have responded to the curative care questionnaire. As in the first model, the second model applies a logit regression model to estimate the probability of entering (or not entering) the modern health care system for the insured and non-insured in pilot districts. Access probabilities are estimated based on specific socio-demographic and economic household characteristics that determine a sick individual's care seeking behavior. The hypothesis is tested that the sick who access health care do not significantly differ in

their socio-demographic, economic, and health characteristics. The logit regression is performed with curative survey data from pilot districts, based on sick individuals as the unit of analysis. The logit model is based on equation (1) presented in the first model, and leads to the following definition of the probability to access modern health care:

$$(3) \quad P_i (\text{Access to professional care}) = 1 / ( 1 + 1/e^{L_i} )$$

Where X represents a set of explanatory variables that are assumed to have caused a sick person to seek care with a professional provider at a health center or district hospital during the two weeks prior to the interview.

### **Model 3: Financial Impact of Household Out-of-Pocket Health Expenditures**

The third model is a log-linear regression which serves to estimate first sick individuals' total average out-of-pocket spending per episode of illness, and second, total out-of-pocket spending conditioned on the positive use of health care services. The model is a linear regression for the logarithm of total health related spending per episode of illness of the sick. The logarithmic transformation of health expenditures per episode of illness eliminates skewness in the distribution of health expenses among users, yielding roughly normal error distributions. The model can be written as follows:

$$(4) \quad \text{Log (total illness related out-of-pocket spending)} = a + b X + e ,$$

where X represents a set of continuous and dummy attributes that are assumed to influence patients' health expenditures. Detailed health expenditures are reported by episode of illness, which includes spending before and during a professional care visit, and will show to what extent patients rely on alternative sources of care outside the formal health sector. The regressions were performed with curative survey data from pilot districts, based on sick individuals as the unit of analysis.



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