Prepared for:
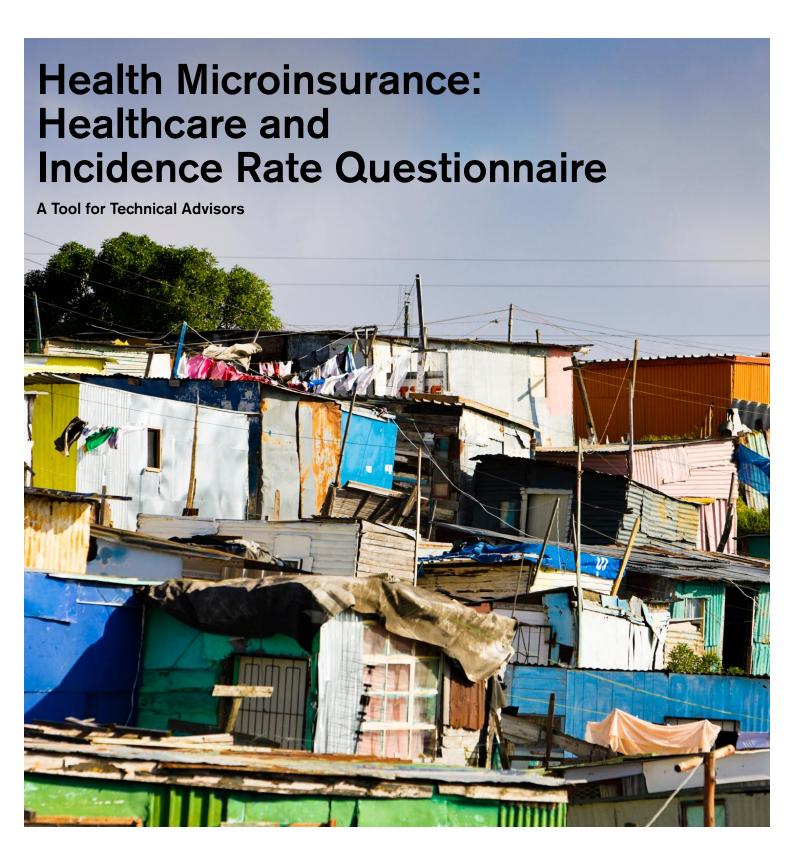**International Congress of Actuaries 2010**
Cape Town, South Africa

Prepared by:
Lisa Morgan
John D. Meerschaert, FSA, MAAA

February 2010

Milliman

Health Microinsurance: Healthcare and Incidence Rate Questionnaire

A Tool for Technical Advisors

TABLE OF CONTENTS

LIST OF ABBREVIATIONS

AIDS: Acquired immune deficiency syndrome
BDT: Bangladeshi taka
CBO: Community-based organisation
CHA: Community health assistant
EPI: Expanded Programme on Immunisation
EUROSTAT: Statistical Office of the European Communities
GP: General practitioner
GBP: United Kingdom pounds
HC: Health centre
HIR: Healthcare and incidence rate
HIV: Human immunodeficiency virus
ILO: International Labour Organization
INR: Indian rupees
LIMS: Low-income medical scheme
MBBS: Bachelor of Medicine, Bachelor of Surgery
MFI: Microfinance institution
NGO: Non-governmental organisation
OECD: Organisation for Economic Co-operation and Development
OOP: Out of pocket
PPP: Private public partnership
RPI: Retail price inflation
TB: Tuberculosis
USD: United States dollars
UNDP: United Nations Development Programme
UNICEF: United Nations Children's Fund
WHO: World Health Organization
WTP: Willingness to pay
ZAR and R: South African rands

ACKNOWLEDGMENTS

EXECUTIVE SUMMARY

In order to launch new health microinsurance products, actuaries and other healthcare professionals will be involved at the pricing stage as technical advisors. In this paper, we provide technical advisors with some guidelines and a tool for collecting healthcare pricing data where none exists or where what exists is unreliable. These tools are provided to the reader as a set of appendices.

To date, health microinsurance products are not prevalent, despite recognition that microinsurance can help provide healthcare in countries where it might not otherwise be accessible. Why? The difficulty in pricing health microinsurance products is one of the major barriers to entry. The value of our guidelines and tools is that they can help to lower this barrier and thereby simplify the establishment of these potentially helpful products in countries that need another layer of healthcare financing.

The Difficulty of Pricing Health Microinsurance

One of the most challenging aspects of pricing health microinsurance is obtaining appropriate incidence rate data. Population and average healthcare cost information is usually more easily obtainable than incidence rate data—for certain populations, appropriate incidence rate data does not exist. In this instance, technical advisors usually make best-estimate assumptions or adjust datasets from similar populations (if that data is available). Using datasets of other populations is not ideal, as this data will not exactly reflect the situation of the target population. Given time and budget constraints, making assumptions about missing data by using general knowledge from healthcare providers or using adjusted data from similar populations may be the only possible approach. This is very risky, as the incidence rates derived through these two approaches are likely to be only tenuously credible.

Those who wish to launch a successful scheme may have the budget and time to commission the market research necessary to obtain missing incidence rate and other data, and thereby launch their products with a more realistic up front pricing structure. Although doing one's own market research means an initial investment expense up front, it could mean the difference between success and failure in the medium to long term. Having to make major adjustments in the repricing of insurance in any market is problematic and is likely to be met with hostility by those affected.

It is important to note that any incidence rate information reflects past patterns of healthcare utilisation. Health microinsurance pricing should also consider efforts to reduce the incidence of preventable diseases through patient and provider education as well as efforts to work with providers to ensure high-quality efficient care that may be lacking in the current environment. Technical advisors should work with the programme sponsor and the microinsurer to understand how past utilisation experience may change after the implementation of the microinsurance programme and adjust pricing models accordingly.

In this paper, we provide technical advisors with some guidelines and a tool for collecting healthcare pricing data where none exists or where what exists is unreliable.

One of the most challenging aspects of pricing health microinsurance is obtaining appropriate incidence rate data.

Although doing one's own market research means an initial investment expense up front, it could mean the difference between success and failure in the medium to long term.

This paper focuses on the process of conducting one's own market research to derive basic, highly relevant incidence rate data for a given population.

A New Template for Health Microinsurance Pricing

This paper focuses on the process of conducting one's own market research to derive basic, highly relevant incidence rate data for a given population.

Aside from the analysis of health microinsurance benefit designs and advice on data sources, pricing, and market research design, we also enclose a copy of our healthcare and incidence rate (HIR) questionnaire as Appendix D. The detailed benefit design analysis should also be helpful for technical advisors involved in the product design stage of a new product.

It is hoped that the HIR questionnaire used in our research and analysis may be reused as a template and amended to fit other situations by technical advisors who wish to conduct their own market research. In order for those living in poverty to engage in meaningful economic activity, access to healthcare is vital. It should therefore be of utmost importance that those who make pricing decisions for health microinsurance schemes are responsible and base their calculations on the best possible data so as to avoid scheme failure, playing their part in bringing forth sustainable healthcare financing solutions.

BACKGROUND: MICROINSURANCE FOR HEALTHCARE

Introduction
Demand and Supply of Health Microinsurance[1]

Together with the risk of losing a household income earner, low-income households in developing countries consistently identify the risk of sickness as their greatest concern. This is illustrated in Figure 1. Of all microinsurance products, health microinsurance is therefore usually in the highest demand.

FIGURE 1: PRIORITY OF RISKS IN SELECTED COUNTRIES[2]	
COUNTRY	**PRIORITY RISK**
UGANDA	ILLNESS, DEATH, DISABILITY, PROPERTY LOSS, RISK OF LOAN
MALAWI	FEAR OF DEATH, ESPECIALLY IN RELATION TO HIV/AIDS, FOOD INSECURITY, ILLNESS, EDUCATION
PHILIPPINES	DEATH, OLD AGE, ILLNESS
VIETNAM	ILLNESS, NATURAL DISASTER, ACCIDENTS, ILLNESS/DEATH OF LIVESTOCK
INDONESIA	ILLNESS, CHILDREN'S EDUCATION, POOR HARVEST
LAO P.D.R.	ILLNESS, LIVESTOCK DISEASE, DEATH
GEORGIA	ILLNESS, BUSINESS LOSSES, THEFT, DEATH OF A FAMILY MEMBER, RETIREMENT INCOME
UKRAINE	ILLNESS, DISABILITY, THEFT
BOLIVIA	ILLNESS, DEATH, PROPERTY LOSS INCLUDING CROP LOSS IN RURAL AREAS

Providing health microinsurance, however, is more difficult than providing most other types of microinsurance. Health risk events are complex and there are more factors to take into account at each step of the product cycle. Such difficulties include:

- the lack of healthcare data for pricing

- the lack of coordination and alignment of incentives of the various stakeholders

- insufficient healthcare facilities and the lack of medical professionals

- involvement of a broader and very different set of skills to provide insurance and healthcare

- the high cost of healthcare, along with high, unpredictable rates of medical inflation

- the high potential for misalignment between what can be afforded by health microinsurance premiums (especially without employer or government subsidies and provider negotiations) and members' expectations

- difficulty in recording member and patient information, and consequently experience monitoring

- high rates of illness and the complexities of comorbidities (for example, caused by a high prevalence of diseases such as HIV/AIDS, TB, malaria, etc.) Often this is linked to poor living conditions.

Despite this complexity, the provision of health microinsurance as one of the tiers of healthcare financing is on the agenda for many different types of organisations. All recognise the high demand for healthcare services, which are considered a necessity—by some as a fundamental human right and by others as a business opportunity.

> Providing health microinsurance, however, is more difficult than providing most other types of microinsurance. Health risk events are complex and there are more factors to take into account at each step of the product cycle.

The Health Microinsurance Market

The health microinsurance market is still relatively new, with the majority of schemes to date being launched in the 1990s. The desire for universal healthcare provision currently features widely in the press in many countries, including the United States and South Africa, and therefore ties in with current key national initiatives. Governments in developing countries around the world are now considering microinsurance as one means of expanding access to healthcare, with the long-term aspiration of universal coverage. Health microinsurance is therefore considered by some as a potential means to an end, at some point of which membership will switch from voluntary to compulsory (i.e., in developing a social security system), while others see it as a permanent feature on the menu of healthcare finance provision mechanisms.

Humanitarian organisations, such as the International Labour Organisation, World Bank, and other charitable foundations, are involved in studying the progress of the health microinsurance schemes currently in operation. Many non-government organisations (NGOs) see healthcare as a fundamental building block in social development, and therefore actively seek out ways of facilitating the most effective means of healthcare financing. Trade unions are interested in protecting the health of their members, and even those in the private sector see scope for profit (e.g., microfinance institutions wishing to broaden their product range). It is therefore likely that the health microinsurance market will continue to grow.

The remainder of this section describes background generic information on health microinsurance, including the general context in which health microinsurance operates and various relevant features of the product.

The Health Microinsurance Target Market

The target market for health microinsurance comprises low-income persons, typically in developing countries. There are a number of common characteristics of such individuals. They often work in the informal economy and have irregular cash flows. Risks, including healthcare risks, are usually managed through a number of informal means, including personal savings and social networks. Low-income persons typically have limited familiarity with formal insurance and may not trust insurance companies.

How Health Microinsurance Meets Needs in Low-income Markets

Low-income persons without any healthcare insurance are vulnerable to the risk of not being able to afford necessary healthcare when needed, and the very real risk of being locked into debt. Loan sharks operate in such developing markets and, as families become desperate to save the health of their loved ones, they can become emotionally malleable and manipulated into unfair loan arrangements. Should the healthcare risks materialise, the cost of paying for healthcare benefits or loans could wipe out entire savings and leave families impoverished and trapped in a cycle of poverty with little or no buffer to mitigate other non-health related risks.

> Health microinsurance can help mitigate health risks, and therefore prevent individuals and families from falling further into poverty. As a financing mechanism often involving those at the grassroots level, health microinsurance schemes can also foster a sense of empowerment, which has further positive ripple effects within the targeted communities.

Health microinsurance can help mitigate health risks, and therefore prevent individuals and families from falling further into poverty. As a financing mechanism often involving those at the grassroots level, health microinsurance schemes can also foster a sense of empowerment, which has further positive ripple effects within the targeted communities. In countries where there is a greater degree of socioeconomic stratification, with a large proportion of the population living on minimal incomes, there is potential for health microinsurance to significantly expand national access to healthcare.

Health Microinsurance and Other Forms of Financing Healthcare

In many developing countries, especially where no national health systems exist, or where the public health systems are inadequate, only the wealthy—usually only a small proportion of society—are able to afford the medical insurance available. While there may be a group of extremely poor who are either unemployed or whose income is too low to afford any insurance (referred to sometimes as *the uninsurable*), there is usually a layer of low-income earners who would be able to pay something towards health insurance but are currently excluded because the schemes available to them do not

cater to low-income earners. There is therefore a gap in the health insurance market, which could be filled by health microinsurance. In countries where the healthcare system is under review and means testing is used, health microinsurance could also play a role in ensuring that all sectors of those societies have access to healthcare and that limited financial resources are used in the most efficient way.

Health microinsurance sometimes goes by other names, such as low-income medical insurance (LIMS) in South Africa. There has been some criticism that because the willingness to pay (WTP) levels are low, the benefits afforded by these premiums are unacceptably low (below the South African government's legislated prescribed minimum benefits). Politically in South Africa, it is desirable to avoid having different classes of care for different sectors of the population—and there are fears that microinsurance may foster this. Plans to allow health microinsurance in South Africa have therefore been put on hold. In 2006, a substantial study on the LIMS concept was conducted, with one of the objectives being to investigate whether insurers may be exempted from the prescribed minimum benefits legislation in the context of health microinsurance products. There has been no further significant development in the health microinsurance arena since this study was published in 2006. Although this has been the major criticism of health microinsurance in South Africa, with talks underway for a South African national health service, the concept of health microinsurance may well be reapplied.

In order to ensure the sustainability of health insurance schemes, the premiums must cover the cost of the benefits and thus, for low premiums, certain benefits become excluded, which results in a medical scheme that has limited benefits. However, engaged governments and NGOs are considering health microinsurance with a view to subsidising the shortfall in order to provide a more comprehensive healthcare package.

Research done in 2006 for the consultative investigation into LIMS schemes in South Africa showed that, of the various ways of financing healthcare, most developed countries have the capacity to collect sufficient revenues through a combination of general taxation, national health insurance contributions, and other social security systems to cover the healthcare needs of most or all of the population. In contrast, most middle- and low-income developing countries are unable to mobilise sufficient funds to meet all the healthcare needs and demands of their populations.

As healthcare is a necessity for most people, those who can afford to will make out-of-pocket (OOP) payments to meet the unmet demand. In developed countries, this OOP expenditure accounts for around one third of total health expenditure, while in developing countries OOP payments make up to about two-thirds of total health expenditure. OOP financing is considered to be one of the most regressive and detrimental methods of financing healthcare, because without the cross-subsidies of microinsurance low-income households tend to spend a disproportionately higher percentage of their incomes on healthcare, increasing financial vulnerability.

Private health insurance, in the form of microinsurance, is therefore recommended by some analysts as a means of moving from partial to universal coverage for countries with large informal sectors and constrained tax resources.[3] Other analysts caution against private (purely for-profit) insurance being the main tier of a national healthcare financing system.[4] This is because the raison d'être of a for-profit company is to make a profit, and hence they will tend to select the good risks while leaving the high-risk persons uncovered. Despite this, there is scope for not-for-profit and for-profit private insurers, especially microinsurers, to play an important role in expanding access to healthcare, as long as governments and/or insurance market regulators remain closely involved in the implementation and running of such schemes to ensure fair play.

Private health insurance, in the form of microinsurance, is therefore recommended by some analysts as a means of moving from partial to universal coverage for countries with large informal sectors and constrained tax resources.

SAMPLE MARKET RESEARCH HIR QUESTIONNAIRE RESULTS AND THEIR USE IN SETTING INCIDENCE RATES

The key tool developed by the authors for technical advisors is the sample market research HIR questionnaire. This questionnaire can be used as a template and adapted if necessary before passing it on to a local market research agency, which will conduct the face-to-face interviews.

This section of the paper describes a hypothetical pricing project, applies the HIR questionnaire to this hypothetical project through a market research survey, and discusses how to use the survey results.

The Hypothetical Pricing Project

The HIR questionnaire was developed to test the process of obtaining meaningful healthcare incidence rate information through market research surveys. The HIR questionnaire is included in Appendix D. The sample market research survey was designed to collect data for the following hypothetical situation:

- A microinsurer is entering South Africa to launch a new healthcare product.

- The microinsurer or an external technical advisor is required to calculate the expected risk cost per person or per household for the scheme.

- The target market is defined as female residential domestic workers in Johannesburg and Pretoria and their households.

- Benefits include medical coverage for the following goods and services:

  — prescriptions
  — general practitioner (GP) visits
  — visits to a sangoma (traditional healer)
  — dental visits
  — vision care or glasses
  — x-rays
  — laboratory tests
  — specialist consultant visits related to pregnancy
  — specialist consultant visits for reasons other than pregnancy
  — hospital admissions that are due to pregnancy
  — hospital admissions for reasons other than pregnancy

The amount of publicly available healthcare information in South Africa is relatively high (i.e., data presented in the LIMS study), but this may not be the case in other regions where technical advisors are required to price new health microinsurance products. Having publicly available information on South African healthcare statistics is useful, as it shows how the HIR questionnaire, which is relatively simple, can be used to obtain incidence rates that are reasonable. By comparing the HIR questionnaire results to the LIMS results, we can deduce that the HIR questionnaire can be used as a template in other regions, although it is always advisable to use local information to check that survey results are reasonable.

Actual Market Research Done for the Hypothetical Pricing Project

The HIR questionnaire was tested in November 2009 on a sample of 150 mostly female residential domestic workers in Johannesburg and Pretoria (see Figure 2)[5].

FIGURE 2: MAP OF SOUTH AFRICA

The authors of this report received funding from Milliman to hire Millward Brown, a local South African market research firm, to perform face-to-face interviews. The questionnaire was translated into Zulu and Sesotho, and the interviews conducted in the language of choice selected by the interviewee. Millward Brown collated the data and provided it to the authors for analysis.

Appendix D includes the entire sample market research questionnaire along with the raw responses for each question.

The sample questionnaire in Appendix D is intended as an example that other researchers can use as a starting point for their own market research. It is not meant to be all-encompassing or to be used in all situations. Researchers should modify the sample questionnaire as they see fit and customise it to meet their objectives.

Sample Survey Results

The sample market research survey was a fairly limited survey of 150 households. Even considering the small sample size, the survey produced interesting and useful results. When comparing the results to the more extensive LIMS study, we can see that they correspond, which shows that even performing a limited amount of market research could be a useful and critical step to produce risk pricing that is more realistic. We first present the socioeconomic results and then the deduced incidence rate.

Socioeconomic Survey Results[6]

Interviewees ranged in age from 20 upwards, with 91% of the sample being age 30 or over. The mean age of those sampled is 44.8 years. Overall, the average family size is 4.5 people, with an average of two children living at home. The average monthly household income is R4,975, with the interviewee contributing R1,650 per month to this amount.

The average annual household expenditure on healthcare is R360. This is roughly 1% of annual income. There are probably reasons why this is relatively low, including the cost of healthcare as a barrier to access. As will be explored later, the actual utilisation of healthcare services and hence the resulting healthcare expenditure, is driven by the forces of supply and demand, not just morbidity.

The table in Figure 3 shows demographic, income, savings, and healthcare expenditure results by age of the interviewee.[7]

AGE OF FEMALE INTERVIEWEE	NUMBER OF INTERVIEWEES REPRESENTING THEIR HOUSEHOLDS	AVERAGE FAMILY SIZE	AVERAGE NUMBER OF CHILDREN	AVERAGE MONTHLY INCOME OF INTERVIEWEE	AVERAGE MONTHLY HOUSEHOLD INCOME	AVERAGE MONTHLY SAVINGS OF INTERVIEWEE	AVERAGE ANNUAL HOUSEHOLD HEALTHCARE EXPENDITURES
20-29 YEARS	14	5.4	2.1	R1,550	R5,625	R140	R560
30-39 YEARS	39	4.6	2.3	R1,825	R5,400	R80	R390
40-49 YEARS	46	4.4	2.1	R1,575	R5,025	R120	R340
50+ YEARS	50	4.4	1.6	R1,650	R4,425	R180	R300
TOTAL	149	4.5	2.0	R1,650	R4,975	R130	R360

FIGURE 3: SUMMARY OF SAMPLE SURVEY RESULTS

A high proportion of the interviewees is single, separated, divorced, or widowed (62%). It is therefore unsurprising that 64% of those sampled are the main breadwinners in their households.

Regarding education levels, the majority of domestic workers had been to secondary school (65%), but none had education beyond this level.

Most interviewees (97%) are paid on a monthly basis and 69% have a formal bank account. Half of the interviewees save a portion of their income.

Interestingly, average monthly household income decreases with age, which means that healthcare becomes less affordable with the increasing age of the interviewee.

Survey Results: Incidence Rates

The HIR questionnaire included various questions regarding the utilisation of healthcare services. The data derived from these questions can be used by the hypothetical microinsurer and/or technical advisor to develop incidence rates for the product pricing models discussed above.

The tables in Figures 4 and 5 show annual utilisation rates per 1,000 for the interviewed domestic workers and their households. The results in Figures 4 and 5 are the raw results and have not been adjusted. When developing incidence rates for product pricing models, the technical advisor should consider incorporating all available data and/or adjusting the survey results based on other information.

In general, the utilisation rates show some interesting results:

• Utilisation rates generally increase with age, as is typical.

• The services used most often are GP visits and prescription drugs, followed by x-ray and lab tests, dental visits, and vision/glasses services.

• The use of traditional healers is quite low.

• Specialist consultations are used the least, probably because of the high cost of private specialists and the target population's modest income.

• About 35% of hospital admissions are related to pregnancy and are most prevalent in the age 30-39 population.

• Hospital admissions appear to be quite high. It may be that the interviewees misinterpreted the questions as asking about inpatient and outpatient services.

FIGURE 4: SUMMARY OF SAMPLE SURVEY RESULTS (ANNUAL UTILISATION RATES PER 1,000 DOMESTIC WORKERS)

SERVICE	AGE 20-29	AGE 30-39	AGE 40-49	AGE 50+	ALL AGES
PRESCRIPTION DRUG	140	330	610	600	490
GP VISITS	1,140	1,670	1,740	1,840	1,700
TRADITIONAL HEALER VISITS	140	50	170	60	100
DENTAL VISITS	210	150	350	220	240
VISION/GLASSES VISITS	0	30	150	440	200
X-RAY/LAB TESTS	70	280	200	360	260
SPECIALIST CONSULTANT VISITS (PREGNANCY)	0	130	0	0	30
SPECIALIST CONSULTANT VISITS (OTHER)	0	0	130	0	40
HOSPITAL ADMISSIONS (PREGNANCY)	70	210	70	0	80
HOSPITAL ADMISSION (OTHER)	140	100	220	120	150

FIGURE 5: SUMMARY OF SAMPLE SURVEY RESULTS (ANNUAL UTILISATION RATES PER 1,000 HOUSEHOLDS)

SERVICE	AGE 20-29	AGE 30-39	AGE 40-49	AGE 50+	ALL AGES
PRESCRIPTION DRUG	500	740	1,000	1,360	1,010
GP VISITS	2,790	3,490	3,150	3,360	3,280
TRADITIONAL HEALER VISITS	360	150	240	160	200
DENTAL VISITS	290	740	610	340	520
VISION/GLASSES VISITS	140	30	150	520	240
X-RAY/LAB TESTS	140	280	330	800	460
SPECIALIST CONSULTANT VISITS (PREGNANCY)	0	130	20	0	40
SPECIALIST CONSULTANT VISITS (OTHER)	0	0	130	0	40
HOSPITAL ADMISSIONS (PREGNANCY)	140	230	150	80	150
HOSPITAL ADMISSION (OTHER)	430	460	350	500	440

The data provided in the 2006 LIMS report provides a ready source of comparison data for the low-income population in South Africa. It is exactly the type of information that actuaries can use when assessing the reasonableness of market research-based incidence rate information.

The table in Figure 6 compares various utilisation rates from the 2006 LIMS report to the utilisation rates from the sample market research as shown in Figure 4.

FIGURE 6: COMPARISON OF SAMPLE SURVEY RESULTS TO 2006 LIMS REPORT DATA (ANNUAL UTILISATION RATES PER 1,000 INDIVIDUALS)			
SERVICE	**LIMS UNINSURED RESPONDENTS**	**LIMS INSURED RESPONDENTS**	**SAMPLE SURVEY RESULTS FOR DOMESTIC WORKERS**
PRIVATE GP VISIT	480	2,240	NA
PUBLIC CLINIC VISIT	1,280	480	NA
TOTAL VISITS	1,760	2,720	1,800
SPECIALIST CONSULTATION	200	280	70
HOSPITAL ADMISSION	45	61	230

The comparison in Figure 6 implies that the incidence rate data collected through the sample market research surveys for domestic workers appears to be within a reasonable range of results. The comparison shows:

• The utilisation rate for GP and public clinic visits for uninsured low-income individuals in the LIMS study (1,760 per 1,000 individuals) is very similar to the sample survey GP and traditional healer utilisation rate for domestic workers (1,800 per 1,000 individuals).

• Specialist visit utilisation is lower in the sample survey results compared to the LIMS study.

• Hospital admissions utilisation is higher in the sample survey results compared to the LIMS study.

• It is possible that the respondents to the sample survey interpreted the survey questions related to hospital services as including specialist consultations and/or public clinic visits. Users of the data may consider shifting a portion of the hospital admission utilisation in the sample survey population to GP/clinic visits or specialist consultations. In an actual pricing exercise, it would be preferable to work with the local market research firm to investigate further.

When using comparison data, it is important to remember to recognise the differences in the populations, such as:

• age and gender
• socioeconomic factors
• presence of insurance coverage
• the manner in which the utilisation rates are stated (e.g., per 1,000 individuals, per household, annually, monthly, etc.)

Survey Results: Importance of Services

The HIR questionnaire includes questions regarding the importance of various types of healthcare services to the health of the interviewee's household—a crude measure of the willingness to pay for an insurance product that includes these services. The data derived from these questions can be used by the hypothetical microinsurer and/or technical advisor to develop benefit packages that are attractive to their target markets.

The table in Figure 7 shows the importance placed on various healthcare services by the interviewees.

FIGURE 7: SUMMARY OF SAMPLE SURVEY RESULTS: IMPORTANCE PLACED ON VARIOUS HEALTHCARE SERVICES BY INTERVIEWEES

IMPORTANCE OF SELECTED SERVICES TO THE HEALTH OF THE HOUSEHOLD
RANKED FROM 1 TO 5 (5 IS THE MOST IMPORTANT)

SERVICE	20-29	30-39	40-49	50+	ALL AGES
PHARMACY	3.4	4.2	4.2	4.2	4.1
GP	4.6	4.6	4.4	4.6	4.5
TRADITIONAL HEALER	1.9	1.9	1.7	1.7	1.8
DENTIST	3.5	3.7	3.5	3.7	3.6
VISION/GLASSES	2.9	3.6	3.2	3.9	3.5
X-RAY/LAB	3.1	3.7	3.2	3.5	3.4
PREGNANCY SERVICES	3.8	3.9	3.2	3.4	3.5
SPECIALIST CONSULTATIONS	3.6	3.6	3.4	3.6	3.6
HOSPITAL ADMISSIONS	4.6	4.3	4.0	4.2	4.2

The sample survey results indicate that the interviewees placed the most importance on GP visits, hospital services, and pharmacy prescriptions.

The 2006 LIMS study includes a very rigorous analysis of the relative importance of healthcare services and the willingness of the low-income population to pay for health insurance. The LIMS study suggested a minimum benefit package for the low-income population that included:

• GP visits
• x-ray and laboratory tests ordered by the GP
• dental consultations
• optometry services
• prescription medicines, subject to a primary care formulary
• emergency transport to a public hospital

The LIMS minimum benefit package excludes hospital admissions, pregnancy-related services, and specialist consultations.

Technical advisors can use the results of market research and more in-depth research, such as the LIMS minimum benefit package study, to identify benefits that low-income populations could afford and would value.

The HIR questionnaire includes questions regarding the importance of various types of healthcare services to the health of the interviewee's household—a crude measure of the willingness to pay for an insurance product that includes these services.

Survey Results: Lessons Learned

The authors would like to specifically note areas where they identified additional topics for questions that could be included in the sample questionnaire to enhance the usability of the results:

- utilisation of public versus private providers
- utilisation of specific providers (for example, providers that have established relationships with the microinsurer)
- more detailed income ranges for households
- current health insurance coverage: who in the household is covered, and the nature of that coverage
- testing of willingness to pay using realistic packages of services at estimated prices
- how households currently finance healthcare
- qualitative data on beliefs and cultural aspects of how the target population manages risk

Adding questions to the survey will increase the cost of the market research, as each interview will take longer and it will also take longer to collate and analyse the results. The cost and benefits of this additional work will need to be assessed by the organisation paying for the market research (the microinsurer or sponsor).

MONITORING INCIDENCE RATE EXPERIENCE

It is important for insurers to monitor the actual incidence rates they experience compared to the pricing assumptions and to make pricing adjustments as necessary. The monitoring of microinsurance programmes is often hindered by a lack of organised utilisation data. While it may not be feasible to track microinsurance data to the detailed level used in more comprehensive health insurance programmes, insurers can consider the following issues when designing their data capture systems.

- The enrolment data file should include information such as:

  — enrolment data for each covered individual
  — comprehensive demographic information to allow for detailed segmentation of the population

- The claim data file should include information such as:

  — member ID (same as in the enrolment file)
  — date of service
  — date of claim
  — type of service (consistent with the benefit package definition)
  — number of services
  — length of hospital stays
  — allowed claims (the total cost of care)
  — patient cost sharing
  — paid claims
  — diagnosis/reason for service

The insurer should develop regular data reports that compare actual utilisation to the pricing assumptions. Pricing assumptions should be regularly evaluated for reasonability compared to the emerging experience.

The above list is by no means a comprehensive set of data that can and should be collected by programme sponsors and microinsurers. Such a comprehensive list is outside the scope of this paper.

It is critical for organisations involved in microinsurance products to collect the right kind of experience data. Product pricing should be a continuous exercise that is informed by emerging experience. The only way to obtain credible experience data is to properly design databases and develop the operational expertise to accurately populate them.

Chapter 3.5 of *Protecting the Poor*[8] includes a more in-depth discussion of data collection for microinsurance products.

It is important for insurers to monitor the actual incidence rates they experience compared to the pricing assumptions and to make pricing adjustments as necessary.

APPENDIX A:

BACKGROUND ON MICROINSURANCE BENEFIT DESIGN

When comparing the benefit designs of health microinsurance products, there is considerable variation from one scheme to the next. Some schemes focus on primary care benefits (e.g., Grameen Kaylan in Bangladesh), while others aim to add value by only covering that which members may deem the most serious, e.g., hospital coverage.

Typical Benefit Designs

When comparing the benefit designs of health microinsurance products, there is considerable variation from one scheme to the next. Some schemes focus on primary care benefits (e.g., Grameen Kaylan in Bangladesh), while others aim to add value by only covering that which members may deem the most serious, e.g., hospital coverage. Still others offer cash payments should certain health events occur (e.g., Vimo SEWA in India). The way the payments are structured (both premiums and benefits) depends heavily on the reasons for implementation and the type of organisation driving the microinsurance initiative. For example, payment mechanisms are easier where a microfinance bank is involved, as customers of the bank already have a financial relationship and bank accounts. There is, however, usually more solidarity where trade unions are the driving force. Some organisations are both providers of insurance and health services (e.g., Grameen Kaylan). This again will affect the benefits that the premiums are able to afford.

Even though benefit designs are varied, there are a number of common elements. Analysis shows that all health microinsurance schemes are aimed at various groups of low-income individuals (such as farm labourers or domestic workers). Most policies have an annual term, which allows for the repricing of products—most important in an environment where there is great uncertainty around how the experience will evolve.

In most cases, there is some form of subsidy, which makes the benefits affordable by the premium and copayments that members are able to pay. The subsidies come from governments, charitable organisations, employers, or via discounts offered by the healthcare providers, which are negotiated by the health microinsurer. Health microinsurance is aimed at the poor who are still able to make contributions towards the premiums. If there is no subsidy available, or if the subsidy is removed from an established plan, the microinsurance plan typically suffers from a lack of participation.

In an overwhelming proportion, females tend to be targeted by microinsurance schemes, as they are among the least paid and most financially vulnerable. Maternal health and the health of children are often prioritised, and therefore many schemes tend to have a focus of providing care for woman and children. Premiums are usually community-rated.

Benefit designs for health microinsurance also tend to be more fluid than for conventional insurance, which doesn't usually combine life and non-life insurance benefits in the same policy. Health microinsurance policies sometimes offer a combination of these benefits in an integrated insurance policy. The basket coverage can include, for example, death, hospitalisation, and asset loss in the same package (e.g., Vimo SEWA). Reasons cited for basket coverage design include that a more comprehensive package minimises both administration expenses and adverse selection.[9] In most instances, the benefit designs tend to be kept at high levels because the data available for pricing is usually highly aggregated.

Figure 8 gives a summary of some of the health microinsurance schemes. Most are currently in operation, while others have ceased. The number of persons covered at various recent dates and the nature of the policy provider is also included. What is notable from Figure 8 is the size of the microinsurance market in India, which is currently considered to have the most sophisticated health microinsurance market.

A comprehensive benefit design analysis is presented in Appendix F so the reader can consider the approaches of three different well-known health microinsurance schemes:

- Yeshasvini Trust, Karnataka, India
- Vimo SEWA, Gujurat, India
- Grameen Kalyan, Bangladesh

COUNTRY	INSTITUTION AND START OF MICROINSURANCE	PERSONS COVERED	INSTITUTIONAL TYPE
INDIA	Yeshasvini Trust 2002	1.45 million (2005)	Unlicensed scheme collaborating with state government and cooperatives. Benefit only available through network of healthcare providers.
PERU	Seguro Materno-Infantil 1998-2001	350,000 (2001)	Public insurance scheme linked to public healthcare providers.
INDIA	Vimo SEWA 1992	120,000 (2005)	Department of a trade union that has switched between the partner-agent and self-insurance models.
SENEGAL	La Coordination Regional de Mutuelles de Sante de Thies 1989	75,000 (2005)	Mutual health organisation.
EL SALVADOR	Bienestar Magisterial 1969	75,000 (2003)	Employee-related scheme via teacher's union.
BANGLADESH	Grameen Kalyan 1996	58,000 families (2004)	Insurance provided by healthcare provider.
MALI	UTM 1998	40,000 (2005)	Mutual health organisation.
BANGLADESH	Society for Social Services 1996	27,000 families (2004)	Healthcare provider and microfinance insurer providing insurance in-house
SRI LANKA	Yasiru Mutual Provident Fund 2000	24,000 (2004)	Unlicensed scheme offering insurance in partnership with NGOs and a network of CBOs.
PARAGUAY	Seguro Integral 2002	15,600 (2002)	Public insurance scheme linked to public healthcare providers.
GUINEA	UMSGF 1999	14,000 (2005)	Mutual health organisation.
BANGLADESH	BRAC Micro Health Insurance for Poor Rural Women in Bangladesh 2001	12,000 families (2004)	Unregulated insurance scheme linked to NGO healthcare provider with network of clinics and an associated microfinance NGO.
BENIN	Association d'Entraide des Femmes 2003	2,300 (2004)	MFI offering microinsurance in-house.
BOLIVIA	Seguro Basico de Salud 1999-2003	Not available	Public insurance scheme linked to public healthcare providers.

FIGURE 8: HEALTH MICROINSURANCE PRODUCTS AND PROVIDERS[10]

APPENDIX B: SOURCES OF PRICING DATA[11]

There can be no good pricing model without data, and as will be noted in any course on modelling, a model is only as good as the data and the assumptions it's based on. Further, the availability of data defines the structure of the model. This means that where data is difficult to find and assumptions hard to formulate, the resulting model is likely to be simple, with wide margins for error. The more disaggregated the data, the more complexity can be built into the model.

When pricing a health microinsurance scheme, there is a minimum of four types of data that are needed for the modelling process:

1. **Population data**: The size and structure of the population financing or paying contributions to the scheme, and the population covered under the scheme.

2. **Utilisation and infrastructure data**:

   - infrastructure of the medical delivery system in the country or scheme (e.g., the number of hospitals by category, number of beds, number of outpatient care units, staffing ratios for inpatient and outpatient care units)

   - the pattern and intensity of the utilisation of the infrastructure by the covered population

3. **Price data**: On the healthcare goods and services for the covered population over a certain period of time, whether these costs are directly incurred or purchased from the providers (e.g., through capitation payments, wages, or salaries).

4. **Expenditure and revenue data**.

There are bound to be many problems with finding detailed incidence data; for the typical target population, health utilisation and other information is mostly not recorded. It is therefore usually necessary to use data that is aggregated from the closest population set.

Cichon et al. give the table shown in Figure 9, which details various sources of health statistics from the international to local levels.

FIGURE 9: THE HIERARCHY OF HEALTH STATISTICS[12]		
TYPE OF STATISTICS	**CONTENTS**	**PUBLISHER**
INTERNATIONAL HEALTH STATISTICS	Internationally comparable data on: • Health status indicators • Healthcare infrastructure and staff (e.g., number of hospitals, hospital beds, practising physicians, other healthcare staff) • Utilisation of healthcare services (e.g., inpatient admission rates, outpatient contacts) • Indicators of variations in medical practice (e.g., mean length of hospital stay) • Prices of selected healthcare goods and services • National health expenditure, potentially by category of service	• WHO (World Health Statistics) • OECD • EUROSTAT • World Bank (World Development Report) • UNICEF • UNDP (Human Development Reports) • ILO (Cost of Social Security)
NATIONAL HEALTH STATISTICS	Similar to the above items, but at a greater degree of disaggregation.	Ministries of health, national statistics offices, statistical yearbooks, health reports.
REGIONAL AND DISTRICT HEALTH STATISTICS	The above items, but further disaggregated, normally to the community level.	Regional health authorities, district health authorities, ministries of health.
SCHEME-BASED DATA	If the scheme has been in operation for some time, and a re-pricing exercise is to be done, an experience analysis can be performed. Otherwise, data could potentially be bought from other similar schemes. Information that can be analysed from this data is: • utilisation rates (for different categories of care) • unit cost (prices) per unit of care • expenditure (total and per category of care) • financial sources or revenue	Individual healthcare schemes (e.g., social insurance schemes, competitors if possible, or own experience if not a new scheme).

The most comprehensive international source is provided by the World Health Organization (WHO) Yearbook on Health Statistics. More detailed data but on a smaller selection of countries can be found in the Organisation for Economic Co-operation and Development (OECD) healthcare database—this is regularly updated and contains data on utilisation. The International Labour Organization (ILO) Cost of Social Security provides aggregated figures on health expenditure. The World Bank World Development Report also provides aggregated healthcare expenditure and access data. Most international data is aggregated at a national level, and therefore may only serve as a benchmark for overall reasonability. More specific data is likely to be needed, and may be found at national, regional, and scheme levels. Academics and professionals may also have conducted studies, so it is worth investigating this additional research for data.

If the technical advisor can't find sufficient incidence data at the above-named sources or elsewhere, modelling may still be possible, taking into account what can be done to handle missing, incomplete,

or inaccurate data. Insurers can also seek to limit their risks in these situations through benefit design limitations until they can assess emerging experience.

Cichon et al. suggest:

- **Developing a system to gather all the data**: This is the best method if there is sufficient time and resources, but gathering all incidence data over a period of time for a particular impoverished target population may take too long if the pricing is needed quickly and it will have its own practical difficulties.

- **Gather a sample of the data**: If accuracy is important for filling in the gaps but there are time and cost constraints for conducting market research, use a questionnaire similar to the one in Appendix D. This is the second-best alternative, and the approach supported in this paper.

- **Make assumptions to develop substitutes for the data**: If cost and time are an issue and a survey can't be conducted, then common knowledge of the situation and discussions with health workers and others may provide some basic data, although this data is unlikely to be very reliable.

- **Use proxy data from similar countries**: In the absence of data for the target population, information from other countries on utilisation may be used as a proxy. Adjustments will need to be made for differences in economic circumstances and health systems. Using this proxy data is usually less expensive, but needs to be done with caution, as the data will not precisely reflect the local situation.

It is important to note that any incidence rate information reflects past patterns of healthcare utilisation. Health microinsurance pricing should also consider efforts to reduce the incidence of preventable diseases through patient and provider education as well as efforts to work with providers to ensure high-quality efficient care that may be lacking in the current environment. Technical advisors should work with the programme sponsor and the microinsurer to understand how past utilisation experience may change after the implementation of the microinsurance programme and adjust pricing models accordingly.

Health microinsurance pricing should also consider efforts to reduce the incidence of preventable diseases through patient and provider education as well as efforts to work with providers to ensure high-quality efficient care that may be lacking in the current environment.

APPENDIX C:

CONSIDERATIONS FOR MARKET RESEARCH DESIGN

While market research can be used to investigate more than just utilisation rates, this is the focus of Appendix C. As mentioned above, where time and budget allow, commissioning one's own market research to obtain the most relevant data is more powerful than relying on international data or making assumptions. Healthcare utilisation rates can vary dramatically for low-income populations based on the availability and perceived quality of public providers, the physical and practical accessibility of medical services, the cost of private providers, existing healthcare coverage levels, cultural norms, and a variety of other factors not typically addressed on broader public data. Obtaining data on a product's target market can be the difference between the success and failure of a product.

One important method used to collect local data is a formal market research study. This section of the report explores considerations for the design of market research studies. For a sample market research questionnaire, see Appendix D.

Design of Market Research Studies

The goal of a market research study is to collect information about a product's target market that will allow the microinsurer to develop a more attractive product design and a more accurate price for the product. Important steps in designing useful market research are:

1. Identifying the target market
2. Designing the survey (with reference to the pricing model and data that will be required to complete risk cost pricing)
3. Data collection methods
4. Understanding cost/benefit tradeoffs

Each of these steps is discussed below to provide general guidelines to researchers developing market research studies. Specific questions and areas of interest will vary based on the country, target market, and product design of each situation.

Identifying the Target Market

Many microinsurance products are targeted to specific groups of people that have similar characteristics, for example:

• residents of a specific geographic area, potentially even as small as a single town or village
• workers in specific industries, whether in formal or informal employment sectors
• self-employed workers, such as farmers or fishermen
• members of cooperative societies, customers of banks, or members of other types of groups

The more specific the target market is, the more important it is to understand the detailed dynamics of that market. Prior to designing the market research study, the researcher should gather background information on the target population so that the study questions are as pertinent as possible. The researcher should seek out the following types of information and consider them in the design of the study:

• availability, accessibility, and perceived quality of public providers
• user fees associated with visiting public providers
• availability, accessibility, and cost of private providers
• availability, benefit designs, and cost of other private health insurance options
• general income and demographic information
• regulatory constraints

The more specific the target market is, the more important it is to understand the detailed dynamics of that market. Prior to designing the market research study, the researcher should gather background information on the target population so that the study questions are as pertinent as possible.

Designing the Survey

After identifying the target market and completing the background research, the researcher should design the survey to collect the information needed to develop healthcare incidence rates for the proposed microinsurance product. In addition to the healthcare-related information, the survey should also collect other information that can be used to better understand the healthcare information and make it useful for pricing the microinsurance product. Researchers should consider collecting information in the following areas:

- **Demographic information**: It is critical to collect information about the demographic traits of the target market. This information can be used to develop healthcare incidence rates by the various demographic traits for use in premium development.

  — age
  — gender
  — location of residence
  — marital status
  — household composition
  — education level
  — employment type and history

- **Economic information**: It is very helpful to understand the economic circumstances of the target population so that affordable products can be designed. Information about savings patterns and bank accounts can help determine the feasibility of periodic premium collection versus annual up-front premium collection.

  — monthly income of main breadwinner
  — monthly income of household
  — sources of income other than employment
  — how often income is earned and received
  — access to other financial resources to fund healthcare
  — savings patterns and use of formal bank accounts (if available)
  — existence of healthcare insurance coverage for each member of a household
  — understanding of insurance concepts
  — receptivity to purchasing insurance in general and healthcare insurance specifically

- **Healthcare questions**: It is important to understand how the target population currently uses healthcare services.

  — Current use of various healthcare services for the main breadwinner and other members of the household. If the benefit design has been established, the specific covered services should be queried. If the benefit design has not been established, all possible services should be queried. Examples of services that are can be included in microinsurance products include:

    - general practitioner (GP) visits
    - traditional healer visits
    - specialist visits
    - pregnancy-related services
    - prescription medication
    - radiology and laboratory tests
    - vision services
    - dental services
    - hospital admissions

— Services covered under microinsurance products can sometimes be limited to specific injuries, diseases, or conditions. Survey questions can query the reason for physician visits and hospital admissions.

▪ **Willingness to pay information**: A major consideration in developing the benefit package and premiums for microinsurance products is the ability and willingness of the target market to pay in advance for insurance coverage. The survey questionnaire can include questions to help assess the willingness to pay for healthcare coverage, such as:

— current healthcare expenditures
— current healthcare insurance coverage and premiums
— ranking of the importance of each healthcare service
— measurement of willingness to pay using realistic benefit packages of services at estimated prices

Data Collection Methods

After developing the market research survey, the researcher needs to determine how best to reach individuals in the target market to conduct the survey. Considerations include:

• It is often best to find a reputable local market research firm as a partner to conduct the survey. Local firms will know the best ways to identify the people to survey and will have a local staff of interviewers to send out into the field to collect data.

• A local market research firm can also help to finalise the survey questionnaire, including translating the survey into native languages, assessing the survey questions for reasonability and appropriateness, and suggesting other potential questions to add to the survey.

• Market research surveys tend to be rather long (at least 30 minutes). It is typically better to perform the survey in person rather than over the telephone. Also, some people in the target market for microinsurance products may not have reliable access to a telephone.

• The data received from the surveys should be entered into a database to allow for easy data analysis.

Understanding Cost/Benefit Trade-offs

There are often cost/benefit trade-offs that need to be made when designing a market research survey, including:

• **Length of survey vs. time to complete one survey**: A shorter survey will be easier to administer, but will not provide as much information to use in benefit design and product pricing.

• **Number of surveys competed vs. cost to complete the surveys**: More surveys will result in more reliable results, but will take longer and cost more to complete.

Each case will vary, but in general:

• If the publicly available information is very good, the researcher may use a shorter survey and survey fewer people. The survey should be designed to validate conclusions that can be drawn from the public data.

• If the publicly available data is poor or not representative of the target market, the researcher may need to use a longer survey and survey more people.

Often, the budget allocated to the survey is fixed, so it may be best to work with the local market research firm to develop a meaningful survey that fits within the predetermined budget.

Example: LIMS Survey[13]

One example of a large survey is the large-scale national household survey performed for the consultative investigation into Low Income Medical Schemes (LIMS) in South Africa in 2005. The LIMS study surveyed over 3,500 low-income households to gather relevant data on:

- current medical scheme coverage
- current healthcare utilisation patterns and preferences
- preferences regarding health insurance packages
- assessment of the ability and willingness to pay for health insurance, and likely demand for health insurance packages, among low-income households

The LIMS study produced a large amount of data of interest to researchers and policymakers. It also includes a wealth of information for potential microinsurers entering the South African market.

The LIMS study was a very large undertaking, with a budget of R2,400,000 and a timeline of almost one year for design, data collection, and analysis. It is a good example of a study that is publicly available that can be used by private insurers as a source of information.

APPENDIX D:

SAMPLE HEALTH AND INCIDENCE RATE QUESTIONNAIRE

Questionnaire
Assessing Heath Insurance Needs in South Africa

Company conducting the survey: **Millward Brown**
Survey conducted for: **Milliman, Inc.**

Note: Only respondents who are employed as domestic workers qualify for this survey.

Interviewer Instructions:

1. The interviewer should read the entire questionnaire before starting interviews to ensure that all terms used and questions asked are fully understood.

2. At the start of each new section, you will see that there are *Interviewer instructions*, which are highlighted in gray. These instructions must not be read aloud to the respondent–they are there to guide you.

3. When a question is followed by a possible list of answers and the interviewer instructions state that you must not prompt the respondent, it is important to keep quiet and let the respondent first think about his/her answer(s). This is because we don't want our suggestions to influence the respondent.

4. When you see the words *Interviewer read* on the left hand side, you must read this aloud to the respondent. This will help the flow of the interview and introduce each of the 4 sections you need to cover.

5. For most of the answers, you will need to record the answers by circling the appropriate answer given on the right hand side of the page.

Interviewer read:
Good morning/good evening. Thank you for taking the time to provide answers to this questionnaire.

My name is _____

I work as a researcher for _____

We are conducting research for Milliman, an international healthcare consulting firm. I would like to ask you a few questions about you, your household, and the healthcare services you receive.

This information will be used to develop research into relevant health insurance products to meet your and others needs.

Your responses will be confidential and you will not be directly named.

Please also remember that there are no right or wrong answers to these questions.

This questionnaire has 4 sections and will take approximately 30 minutes to complete.

(A) - Basic Information

Interviewer instructions:

Please ask the respondent to provide basic information and complete A1–A4 on his/her behalf.

Please circle the appropriate response.

Interviewer read:

To start with, please provide me with the following basic information about yourself. Please note that I will also ask for your name, but this will only be used in case we need to contact you later about the interview.

A1. **INTERVIEW DATE (YYYY/MM/DD)**

A2. **RESPONDENT NAME**

A3. **NEAREST CITY**

1- JOHANNESBURG	1 = 118 RESPONSES
2- PRETORIA	2 = 32
3- OTHER	3 = 0

A4. **RESPONDENT CONTACT NUMBER**

(B) - Demographic Characteristics & Household Composition

Interviewer instructions:

Please circle the answer provided by the respondent for each question posed below.

Do not prompt the respondent or read out the list of possible responses unless specifically instructed to do so or if the respondent struggles to provide you with an answer.

Interviewer read:

This is section 2 of the questionnaire. In this section I am going to ask you questions about you and your household. We define a household as all those people living in the same place as you and sharing in the household costs for food/rental etc. It's not defined as your employer's household.

B1. **GENDER**

1-MALE	1 = 1 RESPONSE
2-FEMALE	2 = 149

B2. **AGE**

1-20-24	1 = 5
2-25-29	2 = 9
3-30-34	3 = 20
4-35-39	4 = 20
5-40-49	5 = 46
6-50-64	6 = 47
7- 65 & OLDER	7 = 3

B3. **MARITAL STATUS**

1-SINGLE	**1 = 73**
2-MARRIED, WITH ONE SPOUSE	**2 = 55**
3-MARRIED, WITH MORE THAN ONE SPOUSE	**3 = 2**
4-SEPARATED/DIVORCED	**4 = 8**
5-WIDOW(ER)	**5 = 12**

B4. **WHAT IS YOUR HIGHEST LEVEL OF EDUCATION COMPLETED?**

1-PRIMARY SCHOOL	**1 = 48**
2-SECONDARY SCHOOL	**2 = 97**
3-DIPLOMA	**3 = 0**
4-UNDERGRADUATE DEGREE	**4 = 0**
5-POST GRADUATE DEGREE	**5 = 0**
6- NO EDUCATION OR NOT COMPLETED PRIMARY SCHOOL	**6 = 5**

B5. **ARE YOU CURRENTLY A DOMESTIC WORKER IN:**

1-RESIDENTIAL EMPLOYMENT?	**1 = 150**
2-OFFICE EMPLOYMENT?	**2 = 0**

B6. **HOW LONG HAVE YOU BEEN EMPLOYED?**

1-LESS THAN A YEAR	**1 = 14**
2-1-3 YEARS	**2 = 36**
3-3-5 YEARS	**3 = 36**
4- 5-10 YEARS	**4 = 36**
5- MORE THAN 10 YEARS	**5 = 28**

B7. **WHAT IS YOUR PERSONAL MONTHLY INCOME?**

1-LESS THAN R1,000	**1 = 15**
2-BETWEEN R1,000 – R1,400	**2 = 55**
3-BETWEEN R1,401 – R2,000	**3 = 45**
4-BETWEEN R2,001 – R3,000	**4 = 27**
5-BETWEEN R3,001 – R4,000	**5 = 8**
6-MORE THAN R4,000	**6 = 0**
99-REFUSED TO SAY (*DO NOT READ*)	**99 = 0**

B8. **ARE YOU THE MAIN BREADWINNER IN YOUR HOUSEHOLD?**

1-YES	**1 = 96**
2-NO	**2 = 54**

B9. **WHAT IS THE TOTAL MONTHLY ESTIMATED INCOME FOR YOUR HOUSEHOLD?**

1-LESS THAN R5,000	**1 = 100**
2-BETWEEN R5,000 – R10,000	**2 = 37**
3-BETWEEN R10,000 – R15,000	**3 = 2**
4-MORE THAN R15,000	**4 = 1**
99-REFUSED TO SAY (*DO NOT READ*)	**99 = 10**

B10.   HOW MANY MEMBERS ARE IN YOUR HOUSEHOLD (INCLUDING YOURSELF)?

DEFINITIONS	
Household: We define a household as all those people	**1 = 6**
living in the same place as you and sharing in the	**2 = 18**
household costs for food/rental etc. It's not defined as	**3 = 28**
your employer's household.	**4 = 34**
	5 = 20
	6 = 17
	99 (MORE THAN SIX) = 27

B11.   HOW MANY MEMBERS OF YOUR HOUSEHOLD ARE FORMALLY EMPLOYED INCOME EARNERS (INCLUDING YOURSELF)?

1 = 57
2 = 63
3 = 21
4 = 3
5 = 0
6 = 0
99 (MORE THAN SIX) = 1 0
(NONE) = 5

B12.   HOW MANY MEMBERS OF YOUR HOUSEHOLD ARE CHILDREN UNDER 18 YEARS OF AGE?

1 = 36
2 = 45
3 = 15
4 = 6
5 = 3
6 = 6
99 (MORE THAN SIX) = 6 0
(NONE) = 33

(C) - Economic Characteristics
Interviewer instructions:
Please circle the answer provided by the respondent for each question posed below.

Do not prompt the respondent or read out the list responses unless specifically instructed to do so.

Only accept multiple responses where indicated to do so.

Interviewer read:
This is section 3 of the questionnaire.

In this section I am going to ask you about your sources of income and the sources of income for your household.

Once again we define a household as all those people living in the same place as you and sharing in the household costs for food/rental etc. It's not defined as your employer's household.

C1. **I WILL READ YOU A LIST OF DIFFERENT SOURCES OF INCOME. PLEASE TELL ME IF YOU EARN ANY OF YOUR MONEY FROM THE FOLLOWING SOURCES IN THE PAST 12 MONTHS:**

		1-YES 2-NO
C1.A	PERMANENT JOB/FORMAL EMPLOYMENT	1 = 150 2 = 0
C1.B	SALE OF ANY GOODS OTHER THAN AGRICULTURAL PRODUCE	1 = 2 2 = 148
C1.C	PROVISION OF ANY SERVICES (THIS INCLUDES RENTING OF APARTMENTS, CARS, LAND, LIVESTOCK, EQUIPMENT, TRADITIONAL HEALING, ETC.)	1 = 7 2 = 143
C1.D	PRODUCTION OF ANY GOODS OTHER THAN AGRICULTURAL PRODUCE (FOR EXAMPLE CARPENTRY)	1 = 0 2 = 150
C1.E	AGRICULTURAL PRODUCTION	1 = 0 2 = 150
C1.F	LIVESTOCK BREEDING	1 = 0 2 = 150
C1.G	PENSION	1 = 5 2 = 145
C1.H	MONEY FROM GOVERNMENT	1 = 15 2 = 135
C1.I	MONEY RECEIVED ON A REGULAR BASIS FROM SOMEBODY LIVING AND WORKING OUTSIDE OF SOUTH AFRICA	1 = 0 2 = 150
C1.J	MONEY RECEIVED ON A REGULAR BASIS FROM SOMEBODY LIVING AND WORKING IN SOUTH AFRICA	1 = 21 2 = 129
C1.K	STOKVEL (UMGALELO)	1 = 39 2 = 111
C1.L	OTHER (PLEASE SPECIFY)	1 = 0 2 = 150

INTERVIEWER INSTRUCTIONS:
Use other only when cannot be classified under categories above

C2. **I WILL READ YOU A LIST OF DIFFERENT SOURCES OF INCOME. PLEASE TELL ME IF YOUR HOUSEHOLD EARNED ANY OF ITS MONEY FROM THE FOLLOWING SOURCES IN THE PAST 12 MONTHS (EXCLUDE YOUR INCOME):**

		1-YES 2-NO
C2.A	PERMANENT JOB/FORMAL EMPLOYMENT	1 = 72 2 = 78
C2.B	SALE OF ANY GOODS OTHER THAN AGRICULTURAL PRODUCE	1 = 1 2 = 149
C2.C	PROVISION OF ANY SERVICES (THIS INCLUDES RENTING OF APARTMENTS, CARS, LAND, LIVESTOCK, EQUIPMENT, TRADITIONAL HEALING, ETC.)	1 = 3 2 = 147
C2.D	PRODUCTION OF ANY GOODS OTHER THAN AGRICULTURAL PRODUCE (FOR EXAMPLE CARPENTRY)	1 = 1 2 = 149
C2.E	AGRICULTURAL PRODUCTION	1 = 0 2 = 150
C2.F	LIVESTOCK BREEDING	1 = 0 2 = 150
C2.G	PENSION	1 = 16 2 = 134
C2.H	MONEY FROM GOVERNMENT	1 = 21 2 = 129
C2.I	MONEY RECEIVED ON A REGULAR BASIS FROM SOMEBODY LIVING AND WORKING OUTSIDE OF SOUTH AFRICA	1 = 1 2 = 149
C2.J	MONEY RECEIVED ON A REGULAR BASIS FROM SOMEBODY LIVING AND WORKING IN SOUTH AFRICA	1 = 31 2 = 119
C2.K	STOKVEL (UMGALELO)	1 = 32 2 = 118
C2.L	OTHER (PLEASE SPECIFY)	1 = 4 2 = 146

C3. **DO YOU CURRENTLY HAVE A BANK ACCOUNT?**

1-YES	1 = 103
2-NO	2 = 44
3-USED TO HAVE A BANK ACCOUNT (LAST 5 YEARS) BUT NO LONGER	3 = 3

C4. HOW OFTEN ARE YOU PAID FOR YOUR PERMANENT JOB/FORMAL EMPLOYMENT?

1-WEEKLY	**1 = 3**
2-EVERY SECOND WEEK	**2 = 2**
3-MONTHLY	**3 = 145**

C5. HOW OFTEN DO YOU RECEIVE OTHER INCOME?

INTERVIEWER INSTRUCTIONS:
ONLY ASK QUESTION C5 IF *YES* CODED IN C1B – C1L. OTHERWISE SKIP TO C6

1-WEEKLY	**1 = 1**
2-EVERY SECOND WEEK	**2 = 0**
3-MONTHLY	**3 = 59**
4-IRREGULAR OR NO PATTERN	**4 = 8**

C6. DO YOU PERSONALLY SAVE (SET ASIDE) PART OF YOUR INCOME?

1-YES	**1 = 75**
2-NO	**2 = 75**

C7. HOW OFTEN DO YOU SAVE?

1-ONCE A YEAR	**1 = 1**
2-EVERY 6 MONTHS	**2 = 1**
3-EVERY 3 MONTHS	**3 = 6**
4-EVERY MONTH	**4 = 57**
5-EVERY WEEK	**5 = 0**
6-EVERY DAY	**6 = 0**
7- NO PATTERN/WHEN I CAN	**7 = 10**

**C8. YOU MENTIONED THAT YOU ARE ABLE TO SAVE_____(READ ANSWER FROM C7).
WHAT IS THE USUAL AMOUNT OF MONEY YOU ARE ABLE TO SAVE??**

1-R20	**1 = 2**
2-R50	**2 = 6**
3-BETWEEN R51 - R99	**3 = 12**
4-BETWEEN R100 - R499	**4 = 49**
5-BETWEEN R500 - R1,499	**5 = 5**
6-BETWEEN R1,500 - R3,499	**6 = 1**
7-MORE THAN R3,500	**7 = 0**
99- DECLINED TO ANSWER (DO NOT READ)	**99 = 0**

C9. **WHAT, IF ANYTHING, ARE YOU CURRENTLY SAVING FOR?**

INTERVIEWER INSTRUCTIONS:
DO NOT PROMPT
MULTIPLE RESPONSE POSSIBLE
USE 15-OTHER ONLY WHEN CANNOT BE CLASSIFIED UNDER CATEGORIES BELOW

1-IN CASE OF EMERGENCY	**1 = 36**
2-FOR FUNERAL EXPENSES (OWN)	**2 = 39**
3- FOR FUNERAL EXPENSES (RELATIVE)	**3 = 34**
4-FOR MEDICAL EXPENSES (OWN)	**4 = 15**
5-FOR MEDICAL EXPENSES (OTHER)	**5 = 3**
6-IN CASE I CAN'T WORK	**6 = 23**
7-FOR MY FAMILY IN CASE I DIE	**7 = 10**
8-FOR FOOD/CLOTHES	**8 = 28**
9-FOR RETIREMENT	**9 = 9**
10-FOR LABOLA	**10 = 0**
11-FOR HOLIDAY/FUTURE RECREATION	**11 = 0**
12-TO BUY A CAR OR HOUSE	**12 = 2**
13- NOT CURRENTLY SAVING	**13 = 0**
14-MY CHILDREN'S EDUCATION	**14 = 11**
15. OTHER (PLEASE SPECIFY) _____	**15 = 0**

(D) - Risks and the Impact of Risks
Interviewer instructions:
Read question D1 and then item A (down).

If response to D1 item A is yes, then read questions D2 and D3 for item A.

If response to D1 item A is no, move to question D1, item B.

D1. **HAVE ANY OF THE FOLLOWING EVENTS HAPPENED TO YOU OR YOUR HOUSEHOLD IN THE LAST YEAR?**
D2. **HOW MANY TIMES HAS IT HAPPENED IN THE LAST YEAR *TO YOU*?**
D3. **HOW MANY TIMES HAS IT HAPPENED *TO OTHERS IN YOUR HOUSEHOLD*?**

		D1		D2	D3
		YES	**NO**	**ENTER NUMERICAL VALUE OR 99 IF PERSON CANNOT SAY**	**ENTER NUMERICAL VALUE OR 99 IF PERSON CANNOT SAY**
A.	**YOU RECEIVED A PRESCRIPTION MEDICATION AT A PHARMACY**	41	109	0 TIMES=4 | 1=16 | 2=14 | 3=2 | 4=3 | 5=1 | 6=1	0 TIMES=10 | 1=11 | 2=7 | 3=7 | 4=2 | 5=2 | 13=1
B.	**YOU VISITED A GENERAL PRACTITIONER (GP) IN AN OFFICE OR CLINIC**	131	19	0=5 | 1=63 | 2=27 | 3=15 | 4=9 | 5=1 | 6=6 | 7=2 | 99=3	0=15 | 1=52 | 2=23 | 3=11 | 4=12 | 5=3 | 6=1 | 7=1 | 8=1 | 10=1 | 12=1 | 99=3
C.	**YOU VISITED A SANGOMA**	13	137	0=1 | 1=7 | 2=4 | 99=1	0=4 | 1=1 | 2=4 | 3=2 | 99=1

D.	YOU VISITED A DENTIST IN AN OFFICE OR CLINIC	37	113	0=9 | 1=18 | 2=5 | 4=2 | 99=3	0=15 | 1=14 | 2=3 | 3=2 | 6=1 | 10=1
E.	YOU RECEIVED VISION CARE OR GLASSES	22	128	0=2 | 1=14 | 2=3 | 3=2 | 4=1	0=18 | 1=2 | 2=2
F.	YOU RECEIVED AN X-RAY	17	133	0=5 | 1=6 | 2=3 | 4=2 | 5=1	0=9 | 1=6 | 4=1 | 9=1
G.	YOU RECEIVED A LABORATORY TEST	10	140	0=2 | 1=5 | 2=2 | 5=0	0=6 | 1=2 | 8=1
H.	YOU VISITED A SPECIALIST BECAUSE YOU WERE PREGNANT	5	145	0=2 | 2=1 | 3=1 | 99=1	0=3 | 1=2
I.	YOU VISITED A SPECIALIST FOR A REASON OTHER THAN PREGNANCY	4	146	0=1 | 1=1 | 2=1 | 3=1	0=3 | 5=1
J.	YOU WERE ADMITTED TO A HOSPITAL BECAUSE YOU WERE PREGNANT	17	133	0=8 | 1=7 | 2=1 | 3=1	0=8 | 1=6 | 2=3
K.	YOU WERE ADMITTED TO A HOSPITAL FOR A REASON OTHER THAN PREGNANCY	33	117	0=18 | 1=9 | 2=5 | 3=1	0=7 | 1=17 | 2=3 | 3=3 | 4=1 | 7=1

Interviewer read:

This is section 4. In this section we aim to learn more about how you and your household use healthcare services.

D4. I WILL READ YOU A LIST OF DIFFERENT REASONS FOR VISITING YOUR GENERAL PRACTITIONER (GP) OR SANGOMA. PLEASE TELL ME IF YOU OR OTHERS IN YOUR HOUSEHOLD VISITED A GP OR SANGOMA FOR THE FOLLOWING REASONS IN THE PAST 12 MONTHS:

		1-YES 2-NO	
		YOU	OTHERS IN YOUR HOUSEHOLD
D4.A	IMMUNISATION	1 = 23 2 = 127	1 = 51 2 = 93
D4.B	PRE-NATAL VISIT	1 = 9 2 = 143	1 = 11 2 = 133
D4.C	BIRTH OF A CHILD	1 = 6 2 = 144	1 = 7 2 = 137
D4.D	TUBERCULOSIS	1 = 2 2 = 148	1 = 7 2 = 137
D4.E	MALARIA	1 = 2 2 = 148	1 = 0 2 = 144
D4.F	HIV OR AIDS	1 = 6 2 = 144	1 = 5 2 = 139
D4.G	OTHER ILLNESS	1 = 110 2 = 40	1 = 92 2 = 52
D4.H	JOB RELATED ACCIDENT	1 = 1 2 = 149	1 = 6 2 = 138
D4.I	OTHER ACCIDENT	1 = 3 2 = 147	1 = 6 2 = 138

D5. PLEASE TELL ME HOW MANY DAYS YOU OR MEMBERS OF YOUR HOUSEHOLD STAYED OVERNIGHT IN A HOSPITAL IN THE PAST 12 MONTHS:

ENTER NUMBER OF DAYS BELOW. IF NONE, ENTER 0.

		YOU	OTHERS IN YOUR HOUSEHOLD
D5.A	FOR A PREGNANCY-RELATED ADMISSION	0 DAYS = 141 | 1 = 1 | 2 = 5 | 3 = 1 | 5 = 1	0 DAYS = 135 | 1 = 4 | 2 = 4 | 3 = 1
D5.B	FOR AN ADMISSION NOT RELATED TO PREGNANCY	0 = 135 | 1 = 6 | 2 = 6 | 3 = 1 | 14 = 1 | 60 = 1	0 = 119 | 1 = 9 | 2 = 7 | 3 = 5 | 4 = 1 | 6 = 1 | 7 = 1 | 31 = 1

D6. WHAT WAS YOUR HOUSEHOLD'S TOTAL EXPENDITURE FOR HEALTHCARE SERVICES IN THE PAST 12 MONTHS?

1-LESS THAN R50	1 = 25
2-BETWEEN R51 – R100	2 = 17
3-BETWEEN R101 – R200	3 = 30
4-BETWEEN R201 – R300	4 = 24
5-BETWEEN R301 – R400	5 = 5
6-BETWEEN R401 – R500	6 = 5
7-BETWEEN R501 – R750	7 = 3
8-BETWEEN R751 – R1,000	8 = 2
9-BETWEEN R1,000 – R2,000	9 = 10
10-BETWEEN R2,000 – R3,000	10 = 0
11-MORE THAN R3,000	11 = 3
99-REFUSED TO SAY (*DO NOT READ*)	99 = 26

D7. I WILL READ YOU A LIST OF HEALTHCARE SERVICES. PLEASE TELL ME HOW IMPORTANT EACH SERVICE IS TO THE HEALTH OF YOUR HOUSEHOLD.

ASSIGN A SCORE BETWEEN 1-5 TO EACH SERVICE
(5 = MOST IMPORTANT, 1 = LEAST IMPORTANT)

D7.A	PRESCRIPTION MEDICATION	1=7 | 2=5 | 3=23 | 4=44 | 5=71
D7.B	GENERAL PRACTITIONER (GP) VISITS	1=2 | 2=5 | 3=11 | 4=27 | 5=105
D7.C	SANGOMA VISITS	1=87 | 2=30 | 3=20 | 4=10 | 5=3
D7.D	DENTAL VISITS	1=15 | 2=12 | 3=38 | 4=36 | 5=49
D7.E	VISION CARE / GLASSES	1=16 | 2=18 | 3=40 | 4=27 | 5=49
D7.F	X-RAYS / LABORATORY TESTS	1=23 | 2=6 | 3=47 | 4=31 | 5=43
D7.G	PREGNANCY RELATED SERVICES	1=21 | 2=14 | 3=35 | 4=28 | 5=52
D7.H	SPECIALIST PHYSICIAN VISITS	1=13 | 2=15 | 3=39 | 4=40 | 5=43
D7.I	HOSPITAL SERVICES	1=8 | 2=9 | 3=12 | 4=35 | 5=86

(E) - Interviewer's Declaration
Interviewer instructions:
This section must be completed by you after the interview has been completed.

E1. HOW WOULD YOU ASSESS THE RELIABILITY OF THE DATA THAT YOU COLLECTED FROM THIS INTERVIEW?

NOT RELIABLE AT ALL	0
ONLY SLIGHTLY RELIABLE	17
RELIABLE	133

APPENDIX E:

OVERVIEW OF PRICING METHODOLOGY: SOME GUIDELINES[14]

In this section we give a brief overview of a recommended standard actuarial pricing approach, which uses the information obtained from the HIR questionnaire. This section is not intended to cover all approaches, and is included to assist the technical advisor in using the survey results to derive a set of risk costs. When international or other data is used, different approaches may be appropriate.

General Comments

As the data obtained from the questionnaire will be at a high level, the methodology should be kept simple so as not to introduce errors by disaggregating a small dataset. As a rule of thumb, data should only be disaggregated if the quality of the projections is enhanced by the additional modelling work. Disaggregation can be along the following dimensions:

- categories of benefits
- subgroups of the insured population
- age/gender groups

The *natural limit* of disaggregation is reached when the next disaggregation step requires information that is no longer statistically available, and would have to be assumed.

We assume here that the microinsurance policy covers one year. It is advisable, when pricing health microinsurance, to limit the projection period to no more than one or two years because of the uncertainty about future experience.

The technical advisor may wish to run various scenarios through the model and present a set of results (e.g., based on *optimistic, pessimistic*, and *realistic* assumptions).

Reasonability checks should be done at each stage where possible, by using the premiums calculated from other similar schemes or from other similar countries to benchmark whether the resulting risk costs and final premiums make sense. Sensitivity testing should also be used to check the variability of the model results.

The willingness to pay (WTP) should also be kept in mind when presenting results to the organisation intent on launching the product. Further meetings may be required to discuss adjusting the benefit schedule or increase the subsidy where the resulting premium is significantly higher than the WTP premium. The WTP premium can be investigated through additional questions in the market research process.

It is critical for organisations involved in microinsurance products to collect the right kind of experience data. Product pricing should be a continuous exercise that is informed by emerging experience.

Calculation Methodology for Schemes Offering Healthcare Benefits

From the survey and other data sources, the technical advisor should be able to collate the following information to calculate an annual risk cost[15] for an annual health microinsurance policy:

- **The population to be covered**: This will include all primary members/policyholders, and their dependents.

- **The average cost of medical goods and service** (by broad category type) over a recent time period: We suggest breaking down the categories into at least the following, or a selection of the following, depending on the benefit design:

— inpatient costs (sometimes split between general hospitals and special hospitals, e.g., tertiary care institutions)
— outpatient costs
— specialist consultation costs (sometimes classified under ambulatory care)
— costs of visiting a general practitioner (sometimes classified under ambulatory care)
— costs of visiting a traditional healer
— maternity costs
— optical care costs
— dental care costs
— diagnostic costs
— prescription or pharmaceutical costs
— medical technology (e.g., prosthetic devices) costs
— costs of other benefits

It is highly unlikely, that given time and budget constraints, there will be enough data from a small sample survey to break the results into age/gender categories that have statistical credibility. The usual approach is therefore to have average costs and utilisation rates for the average person surveyed.

- **An assumption about medical inflation**: This can be formulated by analysing historical data if available, or by using economic theory on medical inflation, which involves applying formulae that take various determinants into account (e.g., behaviour, technology, and economic developments). As a general rule, medical inflation is usually higher than retail price inflation (RPI). The technical advisor will need to decide on the inflation premium to add to RPI to derive a suitable medical inflation. This is then used to increase the historical average costs to the middle of the pricing period.

- **Utilisation rates** for each type of service listed above: These rates are usually expressed as the admissions rate within the population per annum or number of services per annum. For inpatient admissions, the number of bed-days per admission may sometimes be useful in the calculations where the cost per bed-day is available and there are limits placed on inpatient stays.

- **An assumption about whether utilisation rates are expected to increase or remain as they have been over the period covered by the questionnaire.** It should be borne in mind that utilisation is a basic characteristic of the *demand for medical services* and not just morbidity. This demand is believed to be a function of uncertain morbidity rates, along with behavioural factors on the demand and supply side, technological and economic factors, and the current ability of patients to pay for the medical services. Issues of supply-induced demand or past trends on increased demand that are due to education, affordability, etc., need to be carefully considered when setting these **trend rates for utilisation**.

- **The risk cost per person is calculated by multiplying the average cost amounts (ACj) by the average utilisation rate (URj) for each type of benefit category covered by the scheme, j, to get the average expected cost per person for each benefit category (BEj). All average cost and average utilisation rates should have been trended to the mid-point of the pricing period. Finally, to get the risk cost per person per annum, sum over all BEj.**

The technical advisor also needs to consider what adjustments should be made to any statistics or information used that will make them as relevant as possible to the pricing period. Knowledge on how the local health system works is very important, especially with regard to understanding the determinants of price and demand for certain goods and services. Health microinsurance pricing should also consider efforts to reduce the incidence of preventable diseases through patient and provider education as well as efforts to work with providers to ensure high-quality efficient care that may be lacking in the current environment.

Generally, with health microinsurance provider models, the organisation driving the provision of microinsurance will not actually be the insurance provider. Where this is the case, various mainstream providers would be approached to provide the insurance for the microinsurance scheme. The insurance companies would then provide their own loading for profit and expenses. This may be required by the technical advisor to complete the pricing process. Where the premiums are subsidised by governments, employers, or other organisations, this additional revenue will also need to be taken into account to calculate the actual premium offered to potential members. This paper offers no opinions on the level of expenses and profit that is ethical to include in the pricing of microinsurance products. The technical advisor should research current practice accepted by the microinsurance community.

Calculation Methodology for Schemes Offering Cash Benefits for Healthcare Risk Events

In this case the methodology would be the same as above; however, rather than using average cost data, the sum insured is already predefined by the scheme. This makes the calculations easier, as it is only the utilisation data that would be required from a survey for the risk cost pricing rather than the amount and utilisation data.

The risk cost per person in this case is therefore calculated by multiplying the sum of insured amounts by the average utilisation (trended to the mid-point of the pricing period) for each type of medical event covered by the scheme, and then adding these together.

APPENDIX F: BENEFIT DESIGN COMPARISON

In this appendix, we have included a comprehensive benefit design comparison of three health microinsurance schemes:

• Yeshasvini Trust, Karnataka, India
• Vimo SEWA, Gujurat, India
• Grameen Kalyan, Bangladesh

The three health microinsurance schemes analysed have been selected because of the size of their membership and/or worldwide acclaim.

Scheme Benefit Design Study 1: Yeshasvini Trust, India[17]

The Yeshasvini Trust currently manages one of the world's largest self-funded healthcare schemes, the Yeshasvini Co-operative Farmers Health Care Scheme (YCFHCS), which was launched in June 2003. Yeshasvini's mission is to assist in the provision of international quality healthcare to every eligible farmer and his or her family in the state of Karnataka, India. Any farmer who is a member of a cooperative society in Karnataka can receive necessary healthcare treatment by becoming a member of YCFHCS. The trust believes that the Karnataka healthcare scheme has made it a role model for the rest of India, with regard to setting the example for access to healthcare.

Management, Other Stakeholders, and International Interest

Other stakeholders include M/S Family Health Plan Limited, which acts as the implementing agency, and the Karnataka State Co-operative Department, which provides support and guidance. All implementation, policy, and financial decisions are made by the Yeshasvini Co-operative Farmers Health Care Trust, together with input from the government of Karnataka, leading doctors and practitioners, and M/S Family Health Plan Limited. Several prominent state and private individuals act as trustees. The chair of the trust is the principal secretary of the Co-operative Department.

Plan administration involves the activities of various stakeholders:

- the government of Karnataka, which partially subsidises the benefit
- the Karnataka Co-operative Department, which is responsible for communications
- cooperative societies, which enrol members
- cooperative banks, which assist in premium collection
- M/S Family Health Plan Limited, which administers the claims and the network of hospitals that deliver the benefits

The YCFHCS has attracted global attention, including that of the Harvard Foundation and the Rockefeller Foundation. They plan to study the scheme closely and, if it is successful, possibly replicate it elsewhere. The World Bank has also shown interest in the functioning of this health programme as they research new, practical solutions to delivering low-cost, high-quality healthcare in developing countries. The International Labour Organisation (ILO) has showcased the scheme on its website and has also conducted a study by actuaries.

Scheme Concept

The YCFHCS is a contributory scheme—beneficiaries contribute a small amount of money every year in return for covering the risk that surgery and other healthcare may be required. The beneficiaries are offered cashless treatment within a network of over 135 hospitals in Karnataka.

FIGURE 11: YESHASVINI CO-OPERATIVE FARMERS HEALTH CARE SCHEME BENEFIT DESIGN

PRODUCT FEATURE	DETAILS
GROUP OR INDIVIDUAL	Individual
TERM	One year
ELIGIBILITY REQUIREMENTS	Scheme is open to all farming cooperative society members in Karnataka, India, with a minimum of six months membership in the cooperative society. Ages of insured are from newborn to 75.
DELIVERY MODEL	Unlicensed scheme collaborating with state government and cooperatives; benefit only available through network of healthcare providers.
VOLUNTARY OR COMPULSORY	Open to all cooperative society members on a voluntary basis; dependents (spouses and children) are enrolled voluntarily by the member. Some cooperatives societies enrol all their members.
BENEFITS	**Hospital Coverage** Coverage for over 1,600 defined surgical procedures, subject to certain exclusions, at tariffs pre-negotiated with participating hospitals. **Accident Coverage** Coverage for stabilisation after the occurrence of a defined medical emergency: • dog bites • snake bites • bull gore injuries • drowning • accidental poisoning • electric shock • accidents while working with agricultural implements • road traffic accidents • burns **Maternity Care Coverage** Normal delivery. **Neo-natal Care Coverage** Children born prematurely or with low birth weight and requiring special care during the first seven days after birth will be covered.
KEY EXCLUSIONS	• prosthesis • implants • joint replacement surgeries • transplants • chemotherapy • cosmetic surgery • burn cases • dental surgeries • other events and items

FIGURE 11: YESHASVINI CO-OPERATIVE FARMERS HEALTH CARE SCHEME BENEFIT DESIGN	
PRODUCT FEATURE	**DETAILS**
LIMITS	**Hospital Coverage** Rs.2.00 lakh[18] per annum per individual. Sub-limit of Rs.1.00 lakh per surgical procedure per individual. All procedures are limited to one incident per year. Services must be at participating hospitals. **Accident Coverage** Limited to two days of hospitalisation, and a maximum of Rs.1,500 per member per incident. This benefit is restricted to one incident per annum. After stabilisation, the member can continue in the same hospital by paying for the subsequent care or opt to be shifted to another hospital. **Maternity Care Coverage** • One incident per year. • Normal delivery: hospital charges for normal delivery must be no more than Rs.600 per birth. • Maternity benefits are extended to women members of the scheme, but the beneficiary should be above 18 years of age, and this benefit will be extended only for first two pregnancies. **Neo-natal Care Coverage** • One incident per year. • Hospital charges for this treatment (NICU level 2 care) must be no more than Rs.700 per day, subject to a maximum of Rs.5000 per incidence.
ADDITIONAL BENEFITS	• Free outpatient consultation at all participating hospitals. • Discounted tariffs for investigative procedures. • Discounted tariffs for inpatient treatment for procedures not covered. • Scheme benefit can be extended to all the members of family, e.g., married children, daughters- and sons-in-law, grandchildren, etc. • To encourage the cooperative societies' secretaries, they are allowed to collect Rs.10 from each member who wishes to join the Yeshasvini scheme. This meets the cost of stationery.
PREMIUMS	• Each individual cooperative farmer's contribution: under Rs.10 per life per month for an adult member and children (i.e., Rs.120 per annum). • 15% rebate on contribution for families of five or more members.

Scheme Benefit Design Study 2: Vimo SEWA, India[19]

Registered in 1972, the Self Employed Women's Association (SEWA) is a trade union of about 700,000 low-income self-employed female workers; 500,000 of these women live in the state of Gujarat (see the map of India in Figure 10). Although these women are often poor, illiterate, and have meagre assets and no or little working capital, they are extremely economically active. They earn a living through their own labour or small businesses. Collectively, they contribute significantly to society despite their work being poorly paid and undervalued. Of the female labour force in India, more than 94% are in the unorganised sector, also known as the informal economy. As SEWA members have no fixed employer-employee relationship, they are not covered by protective labour legislation and so have no access to basic social protection such as health insurance, maternity benefits, and sick leave.

Gandhian philosophy is the guiding force behind the activities of SEWA's low-income self-employed members to bring about social change. They follow the principles of *satya* (truth), *ahimsa* (non-violence), *sarvadharma* (integrating all faiths and all people), and *khadi* (the encouragement of local employment and self-reliance). SEWA is therefore both an organisation and a movement. The SEWA movement is enhanced by being a sangam, or the coming together of three movements: the labour movement, the cooperative movement, and the women's movement. It is also a movement of self-employed workers, considered to be their own homegrown movement, with the women as leaders.

SEWA members, and hence Vimo SEWA members, can be categorised into four main occupation groups:

1. Manual labourers and service providers (e.g., agricultural labourers, construction workers, and domestic workers)
2. Street vendors (e.g., selling fruit, fish, etc.)
3. Home-based workers (e.g., incense stick rollers, weavers, and embroiderers)
4. Small-scale producers (e.g., gum collectors, craft workers, and others)

Being the poorest of workers in India, and living most often in environments without basic amenities such as water and sanitation, SEWA members and their families are often sick. The high cost of healthcare often prevents an informal sector worker from seeking treatment, which may result in the worsening of her state of health. Poor health, resulting in loss of wages and/or healthcare expenditures, leads to indebtedness, loss of assets, and further poverty. It was in this environment that SEWA began to mobilise women to take control of their economic rights three decades ago.

One of SEWA's first initiatives, after its inception in 1972, was addressing women's needs for financial services—savings and credit. This has been achieved through women's own microfinance organisation, SEWA Bank. Over the years, through SEWA Bank, it has been noted that sickness is the major and recurring crisis in these women's lives. A study in 1977 of women who were not repaying their loans revealed that the major cause was sickness of the woman or her family members. Women in this position frequently sell or mortgage their assets and utilise their hard-earned savings during illness episodes. Vimo SEWA was thus born as a means of financing risk event and healthcare needs.

Vimo SEWA

Launched in 1992, Vimo SEWA is an integrated insurance programme aimed at providing social protection for SEWA members. SEWA members are the users, owners, and managers of all services.

FIGURE 12: VIMO SEWA BENEFIT DESIGN	
PRODUCT FEATURE	**DETAILS**
GROUP OR INDIVIDUAL	Individual
TERM	Annual
ELIGIBILITY REQUIREMENTS	• Available to SEWA members between ages 18 and 55.
	• A husband can't enrol unless his spouse is an enrolled SEWA member.
	• Life insurance coverage terminates at age 64, but other coverage continues to 70 as long as the member pays the premium.
DELIVERY MODEL	Department of a trade union that has switched between the partner-agent and self-insurance models.
VOLUNTARY OR COMPULSORY	Voluntary

FIGURE 12: VIMO SEWA BENEFIT DESIGN	
PRODUCT FEATURE	**DETAILS**
BENEFITS AND PREMIUMS	**Benefits** The benefit is the sum insured, which is paid out when the particular risk event occurs (see Figures 13 and14). There are two different insurance packages. Coverage is for: • death • sickness • loss of assets **Premiums** The packages have varying levels of premiums to reflect the different sizes of the sum insured. Premiums are set annually and collected in advance. Premiums are monitored and revised annually. Two types of payment schemes are offered: • pay premium annually • pay a fixed deposit with SEWA Bank Under the fixed deposit option, members deposit a lump sum in fixed deposit in SEWA Bank. Interest accrued on this deposit goes towards annual premium. Premiums for the second year should be paid before the beginning of the second year of coverage.
KEY EXCLUSIONS AND LIMITS	• Hospitalisation for preexisting conditions will only be covered six months after enrolment. • Maximum annual coverage for all children in a family: Rs.2,500. • Medical benefits will only be given in cases where the member has been hospitalised for a minimum of 24 hours. • Benefits of maternity, hearing aids, and dentures will only be given to members who hold the fixed deposit premium policies. • Members would be eligible to receive benefits only after completion of one year of their membership. • Reimbursement of cataract surgery costs will be available six months after enrolment. • Insurance for house and business assets will be available in case of losses that are due to natural calamities, human-made disasters, and fire. • Claim application should be submitted within three months of the date of loss.
ADDITIONAL BENEFITS	**Special Benefits for Fixed Deposit Premium Women Members** (eligible after completing one year of Vimo SEWA membership) • Maternity benefits: Rs.300 • Dentures: Rs.600 • Hearing aid: Rs.1,000
OTHER DESIGN FEATURES	The fixed deposit premium payment method means that the member deposits a fixed amount in her own name in SEWA Bank. The interest accrued from the deposit goes towards payment of premium, thereby ensuring continuous and long-term insurance coverage. The children's health insurance covers all the children in the family for an annual premium of Rs.100. If a member dies and her husband has been an insurance member, then he can continue to enrol each year at renewal.

Other Stakeholders

With the privatisation of the insurance sector in India, several new insurers are offering a wide range of products at competitive prices. This competition means insurers are keen to provide their services to SEWA, which strengthens the bargaining power of SEWA, enabling it to negotiate with different insurers. SEWA Insurance has selected ICICI Lombard General Insurance Company Ltd and Reliance General for its non-life products and Life Insurance Corporation of India (LIC), Om Kotak, and Bajaj Allianz for its life products.

FIGURE 13: VIMO SEWA SCHEME 1				
	MEMBER	SPOUSE	CHILDREN	TOTAL
ANNUAL PREMIUM	175	125	100	400
FIXED DEPOSIT	2,100	1,500	-	3,600
NATURAL DEATH	10,000	10,000	-	-
HOSPITALISATION	2,000	2,000	2,500	-
ASSET LOSS	10,000	-	-	-
ACCIDENTAL DEATH	40,000	25,000	-	-
ACCIDENTAL DEATH (SPOUSE)	15,000	-	-	-

FIGURE 14: VIMO SEWA SCHEME 2				
	MEMBER	SPOUSE	CHILDREN	TOTAL
ANNUAL PREMIUM	375	350	100	825
FIXED DEPOSIT	5,000	4,000	-	9,000
NATURAL DEATH	30,000	30,000	-	-
HOSPITALISATION	6,000	6,000	2,500	-
ASSET LOSS	20,000	-	-	-
ACCIDENTAL DEATH	75,000	75,000	-	-
ACCIDENTAL DEATH (SPOUSE)	-	-	-	-

Hospital Network

In 2006, Vimo SEWA members in the city of Ahmedabad had the choice between using the cashless hospitalisation system and filing a regular claim. Based on the success of the cashless hospitalisation system, it was extended to all hospitalisation claims submitted in Ahmedabad in 2007. Vimo SEWA now has a network of 21 hospitals. Six *Vimo saathis* appointed by Vimo SEWA exclusively service cashless hospitalisation claims.

Under the hospital network programme, Vimo SEWA selects multi-specialty hospitals run either by the government or by registered trusts. Private hospitals are included only after careful scrutiny of the quality of services provided. Vimo SEWA enters into a memorandum of understanding with each partner hospital, and negotiates affordable rates for its members.

Scheme Benefit Design Study 3: Grameen Kalyan, Bangladesh[20]

Grameen Bank is a microfinance organisation and community development bank that started in Bangladesh in 1983. Its origins can be traced back to 1976, when Professor Muhammad Yunus, a Fulbright scholar at Vanderbilt University and professor at the University of Chittagong, launched a research project to examine the possibility of designing a credit delivery system to provide banking services targeted to the rural poor. The Grameen Organisation and its founder, Muhammad Yunus, were jointly awarded the Nobel Peace Prize in 2006, and in 1998 the Organisation's Low-cost Housing Programme won a World Habitat Award.

The bank operates by making loans to the impoverished without requiring collateral. A group-based credit approach is applied; this relies on peer pressure within the group to ensure repayment. It encourages caution in conducting financial affairs and allows borrowers the opportunity to develop good credit standings.

The philosophy of the bank's founders is that low-income persons have skills that are underutilised, and that with small loans they will be able to harness these skills to alleviate hardship and lift themselves out of poverty. Its primary goal is to provide credit and cost-effective welfare and healthcare services to Grameen Bank members, employees, and other villagers living in the territory. The bank also accepts deposits, provides other services, and runs several development-oriented businesses including fabric, telephone, and energy companies. A distinctive feature of the bank's credit program is that a significant majority of its borrowers are women.

Lending and Healthcare

Recognising that Grameen Bank members need to be in good health in order to engage in income-generating activities, the bank commissioned a rural health programme research project in 1993. Based on this research, Grameen Kalyan, the health microinsurance programme, was launched in 1996. Since inception of the health microinsurance scheme, Grameen Kalyan has also been expanding its health services within rural Bangladesh and so acts as health insurer and health provider of certain services. The affordable health microinsurance scheme offers access to Grameen's network of community-based health centres and satellite clinics, outreach health services led by community-based female health workers, and referrals for secondary and tertiary healthcare.

The focus of these health services is to eliminate inequality in health services in rural Bangladesh and improve health services for the low-income. Presently Grameen Kalyan covers 12 districts and 32 sub-districts with its 38 health centres. The health centres are supervised by six regional structures. Grameen Kalyan is committed to using the most up-to-date technology and providing the best quality healthcare possible. In 2007, Grameen Kalyan's health programme treated just over 3 million patients and provided free domiciliary services to 2.5 million villagers.

Grameen Kalyan's Health Services and Microinsurance Programme

The health centres mentioned above are usually attached to a Grameen Bank branch. Grameen is both the insurer and provider of primary healthcare services. Each centre is headed by a centre director, who is usually an MBBS doctor. The team that assists the director and its individual roles are detailed in Figure 15. The operational area of each centre corresponds to that of the Grameen Bank branch, which usually covers an area with a radius of about eight kilometres. The team also manages satellite clinics on a weekly basis for members living in remote areas.

FIGURE 15: A TYPICAL GRAMEEN KALYAN HEALTH CENTRE TEAM AND RESPECTIVE ROLES

TEAM MEMBERS	ROLE
1 CENTRE DIRECTOR (DOCTOR)	• see patients on an outpatient basis • provide treatment and advice • refer the patients, if necessary, to a referral hospital
1 OFFICE MANAGER	• sell medicine • maintain accounts
1 MEDICAL DIPLOMA DOCTOR	• assist the directing doctor • provide primary treatment and advice • provide family planning methods in the absence of the directing doctor
1 FEMALE PARAMEDIC	• reproductive health • delivery of infants • provide treatment of minor ailments pertaining and supervise the HC
1 LABORATORY TECHNICIAN	• perform routine pathological tests for the patients referred by the doctor • monitor activities of CHAs in the field to improve the quality of domicile services
6 FEMALE HEALTH ASSISTANTS	• provide door-to-door services promoting healthcare services • disseminate health education

Premium and Procedure of Getting Services

By paying the annual premium, a Grameen Kalyan member receives a health insurance card, which provides access to healthcare services from Grameen Kalyan facilities for one year at a significantly reduced rate.

FIGURE 16: GRAMEEN KALYAN BENEFIT DESIGN

PRODUCT FEATURE	DETAILS
GROUP OR INDIVIDUAL	Individual
TERM	Annual
ELIGIBILITY REQUIREMENTS	Mostly aimed at Grameen Bank members, but non-members can also join at an increased premium.
DELIVERY MODEL	Insurance provided by healthcare provider—both part of the Grameen group.
VOLUNTARY OR COMPULSORY	Voluntary
BENEFITS AND PREMIUMS	**Premiums[21]** Annual premium for all villagers: TK300. Annual premium for Grameen Bank members family: TK200. Annual premium for School Health Program (per person): TK10. **Benefits** See the table in Figure 17 for the list of medical services offered at a reduced rate to medical cardholders.
KEY EXCLUSIONS AND LIMITS	• A maximum of six family members including the primary member can receive these services. • Caesarean births are capped at TK2,000.
ADDITIONAL BENEFITS	• Annual basic checkup for lead cardholder • EPI (immunisation against six diseases) • Home visits by a health assistant • Advice for family planning and birth control medication/equipment

FIGURE 17: GRAMEEN KALYAN SERVICE PACKAGE

SERVICE	PRICE, COPAYMENT, OR DISCOUNT OF MARKET PRICE (BANGLADESH TAKA)
Diabetic patient management for all villagers	100
Diabetic patient management for Grameen Bank members family	80
Geriatric patient management (60+ years)	30
Geriatric patient management (50-60 years)	50
Medical consultation copayment for all	10
Medical consultation copayment for non-cardholders (Grameen Bank member/non-Grameen Bank member)	25/50
Prescription copayment for all School Health Program cardholders	10
Maximum members of the family (a TK20 premium will need to be paid for each additional member)	6
Discount for any of the listed 15 basic medicines for cardholders	25%
Discount for other medicines for cardholders	10%
Annual basic pathological tests (routine except during centre visit)	23
Normal pathology tests (% off as listed)	30%-50% discount
Discount off the fees for a specialist doctor should there be a referral	50%
Hospitalisation, maximum for the cardholders	up to 2,000
Cash payment to cardholder for any of the other six family members should any of them be referred to hospital	500 per visit subject to a maximum of 2,000 per year per family
Pregnancy checkups and advice	Only pay prescription copayment
Caesarean birth	Anything over Grameen Kalyan's maximum of 2,000

ENDNOTES

1   Microinsurance in this paper is defined as "a mechanism to protect poor people against risk (accident, illness, death in family, natural disasters, etc.) in exchange for insurance premium payments tailored to their needs, income and level of risk. It is aimed primarily at developing world's low income workers, especially those in informal economy who tend to be underserved by mainstream commercial and social insurance schemes." ILO, Microinsurance Innovation Facility (2008).
2   Cohen, M. & Sebstad, J. (2006). The demand for microinsurance.
3   Broomberg, J. et al. (7 April 2006). Consultative investigation into low income medical schemes, final report.
4   Cichon, M., Newbrander, W., Yamabana, H., Weber, A., Normand, C., Dror, D., & Preker, A. Modelling in health care finance: A compendium of quantitative techniques for health care financing,
5   GeographyIQ. Retrieved December 10, 2009, from http://www.geographyiq.com/countries/sf/South_Africa_map_flag_geography.htm.
6   As of December 2009, the exchange rates are 1 USD = 68.95 BDT; 1 GBP = 114.77 BDT; 1 ZAR = 9.36 BDT.
7   One male interviewee made it into the sample; however, we have excluded him because our intended target group is female domestic workers.
8   Wipf, J. & Garand, D. Protecting the poor, chapter 3.5: Pricing microinsurance products.
9   Wipf, J., Liber, D., & Churchill, C. Product design and insurance risk management.
10 Source: Churchill, C., ed. Protecting the poor: A microinsurance compendium.
11 In this section, we have referred to recommendations from Cichon et al., ibid.
12 Cichon et al., ibid.
13 Broomberg et al., ibid.
14 Cichon et al., ibid.
15 Risk cost is also called burning cost and is defined here as the expected cost per person per annum covered by a scheme.
16 Maps of India. Retrieved December 10, 2009, from http://www.mapsofindia.com/maps/india/india-political-map.htm#.
17 Source: Yeshasvini Web site. Retrieved December 10, 2009, from http://www.yeshasvini.org/.
18 A lakh is a unit in the Indian numbering system equal to 100,000. As of December 2009, the exchange rates are 1 USD = 46 INR; 1 GBP = 76.58 INR; and 1 ZAR = 6.31 INR.
19 Source: Vemo Sewa Insurance Web site. Retrieved December 10, 2009, from http://www.sewainsurance.org/vimosewa2.htm.
20 Sources: Grameen Kalyan Web site, retrieved December 10, 2009, from http://www.grameenkalyan.org/GK%20HOME.html; Wikipedia entry, retrieved December 10, 2009, from http://en.wikipedia.org/wiki/Grameen_Bank.
21 As of December 2009, the exchange rates are 1 USD = 68.95 BDT; 1 GBP = 114.77 BDT; 1 ZAR = 9.36 BDT.

Milliman

Milliman, whose corporate offices are in Seattle, serves the full spectrum of business, financial, government, and union organizations. Founded in 1947 as Milliman & Robertson, the company has 52 offices in principal cities in the United States and worldwide. Milliman employs more than 2,400 people, including a professional staff of more than 1,100 qualified consultants and actuaries. The firm has consulting practices in employee benefits, healthcare, life insurance/financial services, and property and casualty insurance. Milliman's employee benefits practice is a member of Abelica Global, an international organization of independent consulting firms serving clients around the globe. For further information visit www.milliman.com.

Lisa Morgan
lisa.morgan@milliman.com
11 Old Jewry,
London, EC2R 8DU
United Kingdom
+44 (0)20 7847 1631

John D. Meerschaert, FSA, MAAA
john.meerschaert@milliman.com
15800 Bluemound Road, Suite 400
Brookfield, WI 53005
USA
+1 262 784 2250

www.milliman.com