

Focus Note

Health microinsurance scheme design and pricing – lessons from four countries



This note focuses on the challenges and factors that must be considered in premium setting. It summarises the findings of a comprehensive literature review on health insurance experience in four countries: Kenya, Ghana, Colombia and India to identify the key findings, challenges and lessons emerging from an international perspective for the design and pricing of HMI schemes. The underlying literature review focuses on key elements of health insurance risks that can practically be taken into account in price setting, and explores the extent to which open sources of relevant data can be used to a greater extent to develop a more consistent approach for the process of premium determination for HMI products to low-income countries. While focusing in the first instance on data to inform effective HMI pricing, this note also gives attention to the important topic of effective management of provider networks.

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1. WHY THIS NOTE?

Health as an important welfare tool and objective. Macroeconomists and economic policymakers have traditionally viewed population health as a social indicator that improves only after countries become wealthy. However, new thinking views health itself as an instrument of economic growth, not simply a consequence of it (*Bloom, 2011*). Since labour is the main asset poor people have, health status is of central importance to the alleviation of poverty. The role of health insurance in increasing the provision of healthcare services to more people is vital to poverty reduction, particularly in developing countries.

Health insurance as a triangular relationship. Health insurance is a mechanism for spreading the risks of incurring healthcare costs over a group of individuals or households. Health risks in this context can be seen as factors that raise the probability of adverse health outcomes. Health insurance transfers the risk of the treatment cost to the insurer and, since the insurer does not provide the treatment, creates a triangular relationship of potentially conflicting incentives between the insurer, the insured and the treatment provider.

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Based on the full report titled "Literature review on health microinsurance schemes."

Lack of sustainability of HMI schemes. Despite health insurance being one of the most widely sought after microinsurance products in the developing world, most providers of health microinsurance (HMI) have struggled to achieve sustainability without public or donor support. Designing valuable, sustainable HMI products is inherently more complex than for other types of microinsurance. A lack of data and adequate skills for pricing, as well as the challenges around effectively forming and managing provider networks are two key factors that adversely affect HMI sustainability:

- **Impact of poor data availability.** Numerous studies and articles have emphasised both the need for and the lack of meaningful data that is available to inform the process of health pricing (*Ahmed et al, 2005; ILO, 2005; Dror D, 2001 & 2009; Morgan & Meerschaert, 2010; Wipf et al, 2010*). These schemes usually have limited or no trained resources to price and monitor programme solvency, and no sound information on the frequency and severity of covered medical care services to guide their risk managers.
- **Importance of healthcare provider networks.** Health insurance success rides on more than premium setting and data. Equally important, given the triangular relationship, is the effective design and management of provider partnerships. The parameters for insurance options include the type of medical services offered, the degree of freedom to choose providers and the extent of compensation given, the quality of care given by the chosen provider and perceived credibility of the insurer (*Shaw and Ainsworth, 1995*). The extent to which the interests of the insured, the insurer and the service provider can be kept aligned is an important element in the pricing of HMI schemes.

Many factors determine pricing. The design and pricing of HMI products requires a holistic view of the key components of the healthcare value chain: demand, financing, administration, delivery of healthcare services, and the challenges that the health system as a whole faces must all be accounted for in product design and premium setting. There are four principles that an actuary must follow in setting the premium rate of health insurance products: adequacy, reasonableness, competitiveness and equity. The annual claim cost for particular products should be estimated based on the expected frequency of claims and the amount of the average claim, which is informed by the events that are most likely to cause claims and the trend in the likelihood of such events taking place.



2. PREPAID HEALTHCARE: TRENDS AND CHALLENGES

Out-of-pocket expenses are a particular burden for the poor. In the world's poorest countries, most people, particularly the poor, must pay cash for healthcare when they are sick and most in need, which tends to be regressive and often impedes access to care. Since the Millennium Declaration was signed in 2000, resources remain insufficient in most low-income countries to ensure that all people have access to even a very basic set of health services. As a result, an estimated 150 million people suffer severe financial hardship and 100 million are pushed into poverty each year because they have to pay for health services out of their own pockets at the time when they receive care (World Health Organisation, 2014). Reducing out-of-pocket payments (OOP) is of critical importance in prepaid healthcare developments.

Prepaid healthcare pursued as a public policy tool. Evidence from many health systems shows that prepayment through insurance schemes leads to greater financial fairness (The World Health Report, 2010). The World Health Organisation (WHO) has therefore played a significant role in efforts to promote universal healthcare (UHC)¹ in health systems.

Mixture of national health insurance and private initiatives. Kenya, Ghana, Colombia and India have all launched ambitious national health insurance initiatives designed to move towards universal coverage, or have implemented incremental improvements to existing national insurance programmes (*Lagomarsino et al, 2012*). Each of them has implemented different mechanisms to achieve this and to some extent all of them have employed a mixture of public and private healthcare financing and service delivery. Colombia's reform started in 1993 and has been able to achieve near universal coverage while achieving some reduction in out-of-pocket spending. Ghana's reforms are more recent, starting in 2003, yet it has managed to achieve significant gains in health coverage and has also reduced dependence on out-of-pocket spending. The government of India has mobilised funds for healthcare by subsidising insurance premiums as well as healthcare facilities. Kenya established the NHIF in 1966 to enable all Kenyans to access quality and affordable health services.

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¹ The World Health Report (2010) defines the concept of universal health coverage (UHC) as a target in which "all people have access to services and do not suffer financial hardship paying for them" (World Health Organisation, 2010). By this definition, the goal is clear, namely, guaranteeing access to health care and financial protection for all.

The study considered the various public, private and community schemes that provide access to prepaid healthcare in the study countries, focusing on membership, benefits, contributions, service delivery, proportion of costs covered and out-of-pocket expenses².

The following cross-cutting findings emerge:

■ **Low penetration levels.** In spite of the various efforts, all four countries studied are experiencing significant challenges with regard to penetration of prepaid healthcare. Only Colombia has achieved enrolment of more than 80% of its population and Kenya (20%), Ghana (35%) and India (25%) all have limited participation. All of these countries have less than 5% of the population participating in voluntary private health insurance. Kenya and India both suffer from low total health expenditure of less than 40% by government.

■ **Not yet sustainable.** Furthermore, health insurance in all four countries has so far largely failed to become sustainable without external subsidies, even though most of the available covers continue to focus only on inpatient benefits. They are not alone: internationally, mobilising adequate resources required to achieve access to an acceptable standard of healthcare for the population as a whole is a major challenge. In particular, the challenge in revenue collection is to expand prepayment, in which public financing or mandatory insurance will play a central role. In the case of revenue pooling, creating as wide a pool as possible is critical to spreading financial risk for healthcare, and thus reducing individual risk and impoverishment from health expenditures (The World Health Report, 2010).



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Inequality of service delivery a key challenge. Overall, service delivery has improved across the four countries. Both the public and private sectors play a crucial role in the provision of adequate healthcare service delivery. A synthesis of the two sectors in Colombia and India has improved service delivery and choice for beneficiaries. Infrastructure issues and a lack of adequate skills remain significant supply-side obstacles. Access to quality healthcare services depends largely on the type of scheme membership and the proximity of members to healthcare services, leading to a high level of service delivery inequality.

Varying proportions of costs covered and persistently high OOP. Co-payments are often used as a means of reducing moral hazard. However, there is debate among health economists whether co-payments really lower moral hazard. In some cases they are simply viewed as additional financial barriers to access for the poor. Co-payments, and OOP in general, remain high across the countries studied. Disparities exist between outpatient and inpatient cost of care, as well as the amount paid by the insured and uninsured population. Although the most pressing need for below poverty line families is to transfer the risk of outpatient events, most schemes currently offer only inpatient benefits. This contributes to the high levels of out-of-pocket expenses. Furthermore, indirect costs such as transport costs and lost wages are often ignored when discussing healthcare financing; for the poor and low-income groups they present a significant barrier to access of healthcare services.

Poor healthcare infrastructure linked to poor prepaid participation. All of the study countries are hampered by a lack of adequate healthcare facilities and qualified medical personnel. Since insurance plays an important role in mobilising and allocating resources that enable investment in healthcare facilities, it can be argued that the failure to achieve meaningful participation in prepaid schemes is contributing to shortcomings of the health system.



² For a full overview of country-level initiatives, see the full report at <http://cenfri.org/health-insurance-and-financing/literature-review-on-health-microinsurance-schemes>



3. LEADING COST DRIVERS TO CONSIDER IN PREMIUM SETTING

Common cost drivers. There is a high level of common communicable diseases as well as some similarity in the incidence of the events that have an impact on the need for treatment across the countries. As expected, the cost of treatment is strongly influenced by the location of the point of treatment, for example, urban areas are more costly than rural. Surprisingly in some cases, public district hospitals can be more expensive than other facilities and private for-profit healthcare facilities play an important role in providing access to healthcare for the poor (Flessa et al, 2011).

Below, we analyse the key cost drivers common to the different countries, looking at demographic drivers, claims experience, causes and incidence of claims. We also consider the role of the payment mechanisms and product design in driving costs. Although the cost of management and administration are also key elements of any health insurance programme, it is not a significant part of the study as it is already included in other ongoing studies.



Demographic drivers

Demographic features. In each of the selected countries, those at the bottom of the income pyramid represent a significant proportion of the population. These countries have all been successful in delivering increasing economic growth, however this has not translated into an improvement in the quality of life of all people. In all four countries, there is a declining population growth rate that will in due course impact on health insurance claims as the disease profile shifts from communicable to non-communicable diseases (NCDs) as a result of an aging population.

Widespread informal employment a challenge for revenue collection. Despite the growing popularity of taxes as a key source of revenue for coverage programmes, all four countries continue to attempt to collect voluntary premiums from the informal-sector (Joint Learning Network, 2011). However, these countries, like most low and middle income countries, have a significant percentage (60% plus) of the workforce in informal employment. Large informal economies make automatic payroll or income tax deductions difficult to implement on a widespread basis and this makes it extremely difficult to collect contributions to raise sufficient prepaid funds for expansion of health coverage (ILO, 2011; Scheiman et al, 2010).

High costs of insurance as a result of a fragmented risk pool. Fragmentation within defined sub-groups of society (such as community groups, microfinance groups, trader groups, employer groups, faith-based groups) results in the existence of too many small organizations involved in revenue collection, pooling and purchasing. Each of these groups is restricted in their capacity to achieve adequate pooling of resources that will be able to reduce the cost of insurance and attract medical services into their communities. This results in a severe rationing of healthcare for people who are forced into a system of OOP payments that often results in healthcare expenses in excess of 50% of the non-food spending. Of the countries in the study, only Ghana has taken steps to create one large national risk pool.



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Claims patterns

Significance of claims experience in health pricing. One of the ways in which value for money of insurance products can be measured is by the ratio of benefit payments compared to the total premium paid. When this ratio is too low, the policyholders will question the value of the insurance and may not renew their cover. This may impact on the volatility of claims and lead to the discontinuance of the product by the insurer. Since the insured lives that are more likely to claim will continue to renew, the claim ratio may also increase as the low claiming lives withdraw. When the ratio of benefit payment to premiums paid, on the other hand, becomes too high, the product may not be sustainable and is likely to be cancelled by the insurer. Claims experience on existing insurance products can therefore be an important indicator in premium setting.

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The following claims experience is witnessed across the countries:

- **Increased claims experience as for Kenya’s NHIF.** In Kenya, the percentage of members that claim has been increasing. This could be attributable to the increase in membership, higher levels of efficiency, increased public awareness by members of the NHIF products and services from expanding the benefits package and rebranding, and an increase in the number of accredited facilities that have made access to health facilities easier. The result has been increased enrolment by the informal sector; increased levels of benefits paid to members and their beneficiaries, individual contribution rates remaining relatively stable and total aggregate contributions increasing due to increased enrolment.
- **Adequate reserve levels a serious threat to Ghana’s NHIS sustainability.** In spite of the limited participation ($\pm 35\%$ of the population) in the NHIS in Ghana, the number of outpatient visits under NHIS increased from 2.4 million in 2006 to 18.7 million in 2010. Membership numbers, however, only grew from 1.4 million in 2005 to 8.2 million in 2011. As a result, it is projected that reserves will reduce by roughly USD 105 million per year, which would totally deplete the NHIS unless ways could be found to raise additional revenue³.
- **Difficult to review claims experience in Colombia.** Columbia’s SGSSS is dependent on allocations from tax funding and solidarity contributions rather than “premiums” in the traditional approach, therefore making it difficult to compare premiums and claims.



³ Independent Review Health Sector Programme of Work 2010, Ministry of Health Ghana, April 2011.

- Inefficient cost management a cause for unprofitability of schemes in India.** A 2008 study showed that, out of 229 districts in India that had completed one year of the Rashtriya Swasthya Bima Yojana (RSBY) scheme, 47 had total expense ratios higher than 100%, implying unprofitability. The most significant difference contributing to the high loss ratio in these 47 districts is that they have considerably higher hospitalisation rates (6.1% vs. 1.8%) compared to the more profitable districts. Medisave and Jan Arogya policies experienced claims ratios in the range of 120% to 130%. Adverse selection contributes significantly to the high claims ratio, but other causes are more obscure (*BearingPoint, 2008*). This could be the result of the inefficiency and ineffectiveness of the industry itself in managing costs. A study by United Health Care (*BearingPoint, 2008*) found that Medisave has a relatively low medical cost ratio for hospitalisation expenses relative to international commercial insurers, raising the possibilities of bloated bureaucratic costs and/or lack of effective development of quality health products.

Causes of claims

Common health issues. The study countries all share tropical climates and have a significant number of diseases in common that are related to the environment, such as vector borne and water borne diseases. They also share challenges of inadequate health systems that are common to emerging market economies, such as clean water and sanitation.

Burden of disease. Low and middle income countries bear 93% of the world disease burden, yet account for only 11% of global health spending (*WHO, 2010*). This burden, in essence, is what causes health insurance claims. It is a critical element that needs to be well understood in the setting of premiums for HMI. In a report for the Dar es Salaam City Medical Office of Health, it was proposed that the disease burden be classified according to the following categories (*Mtasiwa et al, second version, 2002*):

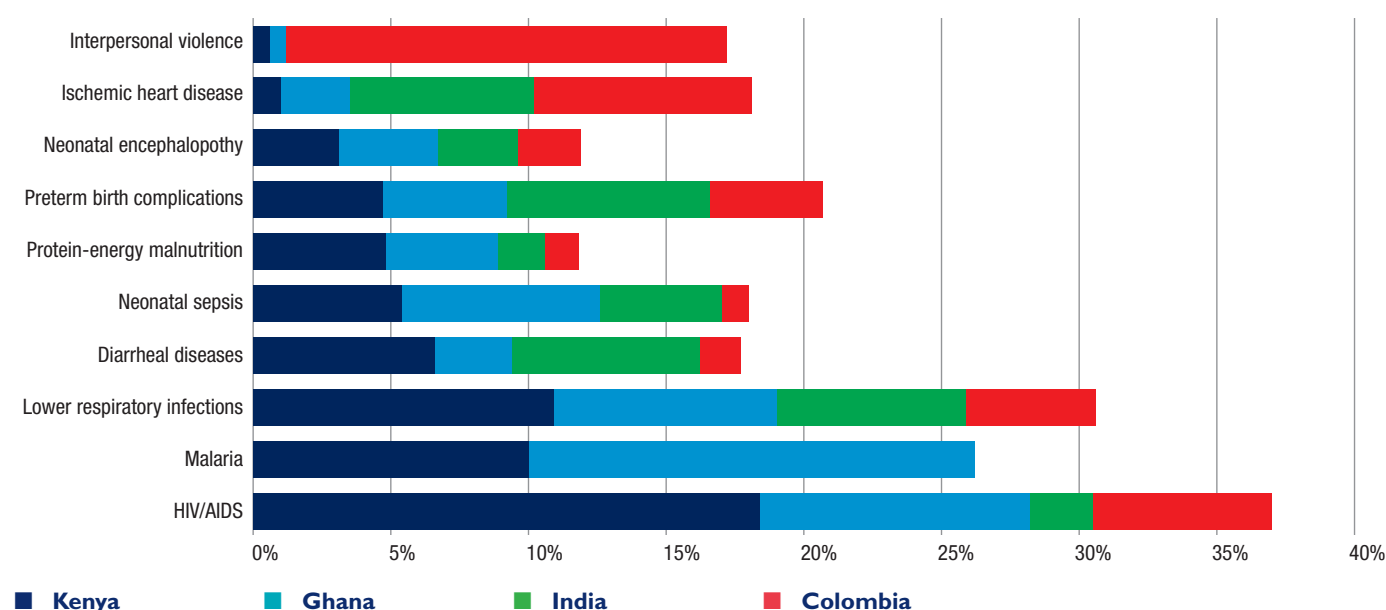
- “Leading causes” are defined as more than 10% of burden of disease
- “Major causes” as 5–10% of burden of disease
- “Minor causes” as 0.1–5% of burden of disease and
- “Insignificant burden” as less than 0.1% of burden of disease

Leading causes of disease burden across data sources. HIV/AIDS and acute febrile illness (including malaria) are the leading causes of the burden of disease across the four countries, followed by diarrhoeal diseases, acute respiratory infection (including pneumonia), and injuries and accidents (where there is greatest agreement between data sources), as illustrated in Figure 1.



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Figure 1: Main diseases causing mortality (2010)



Source: Compiled by author from WHO data

Less common causes of disease burden across data sources. Other conditions that are major causes of disease from some, but not all of the data sources include perinatal conditions, maternal conditions, anaemia, heart problems, cardiovascular disease and “other” infections. Notifiable diseases do not feature as important causes of disease in any of the data sources accessed. “Uncertain” causes are also a leading contributor to burden of disease.

Table 1 compares data sources on the burden of disease by category. This approach may be helpful for HMI products, both in respect of benefit structuring and benchmarking of tariffs.

Table 1: Categorised causes of illness requiring treatment

Disease or condition	Group	Mortality data	Outpatient admissions	Inpatient admissions	Community perceptions
TB & AIDS	All categories Age 0 – 14 years Adults	Leading cause Major cause Leading cause	No burden	Minor cause	Leading cause
Malaria/AFI	All categories Age 0 – 14 years Adults	Leading cause Leading cause Major cause	Leading cause	Leading cause	Leading cause
Perinatal conditions	Infants (0 – 4)	Leading cause	No burden	Minor cause	Not in top 5
Injuries/accidents	Infants (0 – 4) Children (5 – 14) Male adults Female adults	Not featuring Not featuring Leading cause Minor cause	Minor cause	Minor cause	Minor cause
Diarrhoeal disease	Infants (0 – 4) Children/adults	Major cause Minor cause	Major cause	Major cause	Major cause
Acute respiratory infection	Infants (0 – 4) Children (5 – 14) Adults	Major cause Minor cause Minor cause	Leading cause	Minor cause	Leading cause
Pneumonia	Age 0 – 14 years Adults	See ARI See ARI	Major cause Major cause	Leading cause Major cause	No burden? No burden?
Maternal conditions	Female adults	Major cause	Minor cause	Major cause	Minor cause
Malnutrition	Age 0 – 14 years	See anaemia	Minor cause	Minor cause	No burden?
Anaemia	Age 0 – 14 years Female adults	Minor cause Minor cause	Major cause Minor cause	Minor cause Minor cause	No burden
Cancer	Adults	Not featuring	No burden	No burden	No burden
Cardiovascular disease	Adults	Major cause	Minor cause	Major cause	No burden??
Other infections (skin, ear, eye)	All categories	–	Major cause	Minor cause	No burden?
Uncertain	All categories	Leading cause	–	–	–

Incidence trends

“Improved availability of national healthcare services has led to increases in the incidence of claims across the countries studied. Improved access to and use of primary care can reduce the need for hospitalisation and improve the sustainability of HMI schemes. The majority of these are with respect to cheaper communicable diseases, however there is also an increasing trend in the incidence of non-communicable diseases.”

The incidence experience across the countries is as follows:

- **Kenya to experience a shift from communicable diseases to non-communicable diseases (NCDs).** Preventable communicable diseases which are easy and cheaper to prevent or treat continue to be the largest contributor to morbidity. Some of the most common causes of both outpatient and inpatient morbidity are still related to the availability of safe water and sanitation and the lack of effective preventative actions. However, an emerging epidemic of NCDs – which will require more costly resources to prevent and manage – must be taken into account.
- **Significant increase in outpatient and inpatient visits for Ghana.** The implementation of the NHIS has increased access to healthcare for Ghanaians and utilisation has increased dramatically as a result. The number of outpatient visits increased from 0.6 million and 2.4 million in 2005 and 2007 respectively, to 18.7 million in 2010 and to over 25 million visits in 2011. Inpatient admissions have also increased from about 29 000 to 1.5 million admissions over the period from 2005 to 2011 (*Ghana Ministry of Health, 2011*). Communicable diseases continue to have a significant prevalence in Ghana, although the trend in NCDs is increasing.
- **Colombia experiencing epidemic cycles and a rise in NCDs.** Colombians suffer from a number of environmental diseases which follow epidemic cycles. As risk factors increase, the mortality causes associated with chronic NCDs have also increased. In 2008, among the 10 principal mortality causes, six were related to NCDs (*PAHO, 2010*).
- **Better access to primary care can improve the sustainability of schemes in India.** According to the National Sample Survey Organization (NSSO), the hospitalisation ratio⁴ for all income groups in all of India was 2.7%. The hospitalisation ratio for the 229 districts that had completed one year in the RSBY scheme was 2.4%. According to the NSSO, the usual hospitalisation rate for the bottom two quintiles by income was 1.7% in 2004 (*Hou & Palacios, 2011*). It appears therefore, that RSBY may be enabling people to undergo hospitalisation more than they could have afforded to in the absence of the scheme. Evidence from India suggests that access to primary care can reduce the need for hospitalisation. A district that has 1% higher usage of primary care has lower hospitalisation ratio of 0.03 percentage points. There is a case for State Nodal Agencies (SNAs) to assess the costs and benefits of increasing usage of primary care to improve the financial sustainability of the scheme (*Krishnaswamy et al., 2011*).



⁴ The ratio of the number insured to those who claimed at least once.



The role of payment mechanisms

Setting remuneration rates

A critical design issue is the provider payment mechanism and the remuneration rates, which need to set appropriate incentives to health providers (Mathauer, 2011). In order to set appropriate remuneration rates, cost information is required, but this is usually difficult to obtain due to the lack of standard tariff structures in developing countries. Inclusion of providers in developing the costing methodology is therefore important for increasing the acceptability of remuneration rates (Mathauer, 2011). Pooling and purchasing are issues that impact strongly on cost certainty and bringing about common standards will play an important role in enabling more sustainable HMI developments.

Payment mechanisms as cost driver

The mechanism for paying providers will have a significant impact on the treatment cost that is incurred by a health insurance scheme. The following three payment systems are commonly used in different jurisdictions and schemes:

- **Fee-for-service:** The most commonly used form of payment, however often leads to increased subscription by providers of more expensive medicines per insured patient.
- **Capitation:** Shifts some of the risk from the insurer to the health provider, and reduces over-servicing, however has led to prescribing of essential medicines only, instead of more effective expensive leading medicines.
- **Case-based payment system:** Aims to reimburse hospitals the average expected cost in an average-performing hospital to treat a case in a given category. Has also led to cost cutting by hospitals and over-prescribing of cheaper medicines.

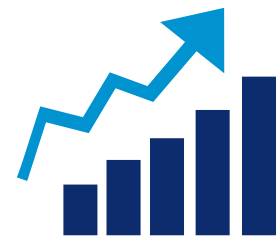
The following cost drivers emerge across the four countries with regard to the payment mechanisms:

- **Private-for-profit health institutions provide important services to Kenya's poor.** The results of a study, commissioned by the Government of Kenya (Flessa et al, 2011), show that the costs of healthcare services are high in Kenya. However, the costs will not necessarily increase proportionally as coverage increases as a result of a high level of fixed costs. Surprisingly, the results of the study also show that private-for-profit healthcare facilities play an important role in providing services for the poorer population. The study findings demonstrated a high degree of cost variability across private providers. Some private-for-profit healthcare institutions have very high unit costs, charge very high fees and serve the very rich. At the same time, some private-for-profit institutions offer low quality at low costs and do not serve the rich. This suggests that the average is not reflecting the reality of Kenyan healthcare costs.
- **Provincial hospitals provide cheapest treatment.** Contrary to expectations, the costs of treating three selected conditions of malaria are higher in public health centres than in public district hospitals and higher still than in provincial hospitals. The costs per diagnosis at public provincial hospitals are also lower than at public district hospitals. It is important to note that the direct costs typically increase with level and type of the facility. However, indirect costs of public health centres are very high as a result of low occupancy whilst the high occupancy of provincial hospitals results in low indirect costs per patient (Flessa et al, 2011).

- **Cost inflation resulting from fee-for-service and case-based payment systems in Ghana.** Cost of care in Ghana increased rapidly between 2005 and 2008 before dropping slightly for both outpatient and inpatient services. The NHIS in Ghana found that the fee-for-service payment system promoted inflation of health care costs and fraudulent claims. It therefore introduced a case-based G-DRG (Ghana Diagnosis-related Group) basis of payment for inpatient and outpatient services at clinics and hospitals. After the introduction of the case based G-DRG payment system in Ghana, treatment costs escalated again.

Investigations subsequently showed that, for example, the G-DRG based treatment cost for malaria resulted in a sudden increase of up to 40% in outpatient costs of the scheme due to the fact that more malaria cases were treated as “complicated” rather than “uncomplicated”; i.e. the G-DRG categories. This illustrates that decisions on the provider payment mechanisms to be employed need to be based on evidence and a thorough understanding of the effect of change in policy on the entire system (Seddoh et al, 2011). The NHIA is considering the introduction of a capitation system for outpatient care at primary care centres. The pilot capitation project is being conducted in the Ashanti Region with grant funding from the World Bank.

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- **High pharmaceutical expenditure and fraudulent activity in Colombia.** Colombia's public expenditure on pharmaceuticals as a percentage of GDP has escalated in recent years from 1.33% of GDP in 2006/08 to 3.15% of GDP in 2009 (Andia, 2011). These results suggest that in Colombia, pharmaceutical expenditure is not only extremely high, but badly allocated as well. A related issue has been the uncovering of a wide variety of fraudulent activity in the processing of claims for the mandatory benefits package including fraudulent use of identities, fraudulent enrolments, payments in cases of false diagnosis, and fake documentation to simulate provision of services rendered (Torres and Acevedo, 2013).
- **Increased public healthcare expenditure in India.** The outlay of India's Ministry of Health and Family Welfare for health was increased by 52% to USD 5 billion in 2011/12. Total public expenditure is increasing and the emphasis on public health and disease prevention in the Indian budget is improving, but is still only approximately 20% of total health expenditure. Spending on healthcare in India is estimated at 5% of GDP in 2013 and total annual healthcare spending is expected to more than double to USD 201.4 billion over the period 2012 to 2017, an average annual growth rate of 15.8%⁵. The Indian government plans to cover health insurance for 80% of the population by 2020 under its Health Insurance Vision 2020, released in December 2013.
- **High expenditure on medicines negatively impacting health outcomes.** Relating to payment mechanisms, according to the World Health Organisation (Faden et al, 2011), 41% to 56% of households in Low Middle Income Countries (LMIC) spend all of their healthcare expenditures on medicines (Wagner, 2010). Evidence from high-income countries suggests that higher medicines out-of-pocket co-payments result in lower utilisation and poorer health outcomes (Faden et al, 2011). Medicine cost is therefore a critical component of health insurance purchasing that must be considered in planning and pricing.

The role of product design

International research provides a number of insights into the role of product design:

Product controls to limit costs. The decision to consume health services as well as the decision to provide it must be subjected wherever possible to some form of risk sharing and/or limitation, and create incentives for behaviour that will protect the insurer's risk pool to ensure the sustainability of the insurance arrangement. Measures that, among others, restrict the choice of provider or subject the utilisation of benefits to some form of control (e.g. managed care) must be viewed as key elements in the product design. The inclusion of both inpatient and outpatient benefits in HMI products, restriction of choice of service provider, and the appropriate type of provider payment mechanism are important factors that can enhance the sustainability of HMI schemes.

⁵ Healthcare Briefing and Forecasts: India: Healthcare Report, Economist Intelligence Unit, August 1, 2013.

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Covering both inpatient and outpatient benefits to improve sustainability. Benefit structures should be designed to ensure that a good or reasonable quality of life can be maintained and should be informed by a vision that aims to improve affordability and quality of healthcare, whilst keeping in mind that the demand for healthcare services is practically unlimited. It is interesting in this regard to observe that the hospitalisation ratio is negatively correlated to primary care usage (but not correlated to the availability of primary care facilities in the district, or other factors such as sanitation and other amenities that prevent illnesses). This suggests that access to primary care can reduce the need for hospitalisation (Mahal et al, 2013). Schemes that only cover inpatient benefits are therefore likely to experience higher claims ratios than schemes that also cover outpatient benefits.

Benefits of single-service provider products. In a case study on Microcare Insurance Limited (MIL) in Uganda (Greyling, 2013), an analysis of membership and claims showed that single-service provider products performed much better than those that allowed members to choose from a wide selection of service providers. It was found, for example, that in 2008, Kibuli Hospital (through a single-provider product) provided treatment to 7% of all patients but only made up 4% of MIL's claims cost. Paragon Hospital (through open products), on the other hand, provided treatment to 13% of patients but was responsible for 22% of the total claims cost.

The use of incentives to improve HMI scheme performance. Payment mechanisms can also be structured to create incentives and the responses of the providers to those incentives and the accountability mechanisms established between providers and purchasers can have profound effects on the results of an HMI scheme (Langenbrunner, 2009). Incentives can also target scheme sponsors. Anecdotal evidence from Ghana indicates that a loss-making corporate health insurance scheme started making underwriting profits within a few months of introducing a profit sharing arrangement with the employer, in spite of the benefits remaining the same. This arrangement has, however, not been in operation for long enough to be a reliable indicator.

Type of provider payment mechanism an important design issue relating to costs. The introduction of Ghana Diagnostic Related Groups (G-DRGs) as the basis for provider payments in the Ghana NHIS unexpectedly caused claims costs to escalate significantly as mentioned earlier. The G-DRG basis, by creating a significant tariff difference between an ordinary malaria diagnosis and a complicated malaria diagnosis caused an increase in the cost of malaria treatment of almost 100%. As a result of the fact that malaria constitutes a significant proportion of all outpatient cases, this caused a 40% increase in the total cost of outpatient claims. This is a good example of "tariff creep" or upward billing whereby providers code diagnoses upward to obtain a higher reimbursement (Witter and Garshong, 2009). Appropriate measures must be taken when designing the payment systems of HMI products to avoid such cost inflation.



4. IMPORTANCE OF PROVIDER NETWORK MANAGEMENT

Provider management is a prerequisite for sustainable health insurance business. Without providers to deliver quality healthcare, insurers will not be able to retain policyholders. However, without proper control mechanisms over providers, claim costs will invariably escalate to levels that cannot be sustained. Thus effective coordination between insurers and providers is vital to reducing claims costs and OOP payments. Further, country specific factors must be adequately taken into account when service providers are selected to avoid the misalignment of required treatment and the choice of provider facility used, which often leads to the inflation of costs.

Various selection criteria. Outcomes-based criteria can be used as an indicator for quality healthcare and the validity of this approach is seldom questioned. However, a number of considerations limit the use of outcomes as measures of effectiveness. The first of these is whether or not the outcome of care is, in fact, the relevant measure. Many factors other than medical care may influence outcomes, and precautions must be taken to hold all significant factors other than medical care constant if valid conclusions are to be drawn (Donabedian, 2005). The leading causes of morbidity in the target population for HMI must therefore be properly considered in the choice of service providers and the selection of the service providers should also be aligned to the intended price of the specific benefit package. For example, primary care is often obtained at tertiary care facilities at unnecessarily inflated costs.

Misalignment of fixed package rates and service costs. Package rates in RSBY (India) have been fixed from the providers' perspective and include only direct costs of treatment. However, around 60% of patients covered under RSBY still incurred out-of-pocket expenses. One of the explanations given by the providers for charging additional fees was that the package rates fixed for most of the services were low and that some categories of non-surgical treatment were not covered (Devadasan *et al.*, 2011 & 2013). Improved coordination is required to avoid surplus costs being passed on to patients.



5. CONCLUSION: CROSS CUTTING ISSUES AND LESSONS

This note has shown that the assumption that, with the provision of coverage, services will be available to meet demand is not valid in countries that not only have broken health systems with huge gaps in supply and infrastructure, but are also burdened with communicable diseases that require a significant level of preventative health action.

Similar burden of diseases. This study indicates that the burden of diseases that cause health insurance claims is remarkably similar in all four countries (with some exceptions such as violence in Colombia and low impact of malaria in India). It should therefore be possible to create a common "burden of disease" rating table that can be populated for any geographical area based on WHO indicators and local tariffs for treatment. The experiences in the study countries can largely be applied to the more than 3.3 billion people who live in the developing countries with tropical climates, and are representative of 84% of the global population in 2010.

Common cost drivers. Premium determination must take place within the context of the broader health system. Nevertheless, the review of factors affecting prepaid healthcare in the study countries renders insights that may be useful for the purpose of premium determination.

Premiums for HMI are most strongly determined by the risk of incurring treatment cost and the cost of maintaining the product. Treatment cost is determined by the pattern of disease and the way in which health-seeking behaviour of policyholders impacts on incidence and cost of treatment. The most significant cost component for maintaining the product will usually be the cost of claims administration. Furthermore, provider network management as well as the design of the product (benefit structure, premium collection, service delivery and claims settlement) will have a significant impact on the way in which these cost elements lead to profitability or not.

With this in mind, some conclusions can be drawn from the schemes in the four study countries regarding the pertinent issues affecting treatment cost, provider network management, and the structuring of benefit packages between in-patient and out-patient care:

Cost drivers

Widespread fragmentation of the risk pool. Fragmentation of the risk pool into large numbers of small insurance risk pools is one of the most serious obstacles to the establishment of sustainable universal healthcare (McIntyre et al, 2008). Fragmentation within defined sub-groups of society (such as community groups, microfinance groups, trader groups, employer groups, faith-based groups) results in the existence of too many small organizations involved in revenue collection, pooling and purchasing, which restricts their capacity to achieve pooling. The extent to which the popular partner agent model contributes to the fragmentation of the risk pool should be reviewed and if possible ways may need to be found to allow multiple participants in one common risk pool, which will impact on the ability to achieve premiums that BPL families can afford. In this regard, Ghana may serve as a potential example.

Fraud and quality control. Concerns about fraud and quality control are emerging in all four countries, particularly since all of them have systems that consist of many fragmented private providers with little quality control (Lagomarsino et al, 2012).

High OOP. OOP payments are high in all four countries and represent the most extreme form of fragmentation as it places the burden of healthcare funding on the individual (McIntyre et al, 2008). The persistent high level of OOP payments surely suggests that the HMI products on offer do not address the basic needs of the BPL families with regard to their perception of value for money.

Shift towards NCDs. All four countries are experiencing a declining population growth rate and an aging population that will in due course impact on health insurance claims as the disease profile shifts from communicable to non-communicable diseases. This is already evident in the increasing prevalence of diabetes, hypertension and chronic diseases such as asthma, all of which are more expensive to treat.

High medicine costs due to inefficient payment mechanisms. A high level of healthcare expenditure on medicines in LMIC will lead to lower utilisation of healthcare services and more adverse healthcare outcomes. For this reason, medicine cost is an important factor to consider in HMI pricing. Payment mechanisms which inflate the costs of medicine need to be replaced by more efficient mechanisms.

Unique factors influence health-seeking behaviour. The incidence of claims has been shown to be similar for the study countries and allow some assumptions to be made in pricing. However, health-seeking behaviour is strongly influenced by regional and community specific factors, such as socio-economic variables (Schieber et al, 2012; Antwil et al, 2013), gender (Blanchet, 2012) and a rural or urban location. Being insured also increased utilisation, for example, in Ghana 76.3% of women enrolled in NHIS visited a health clinic or hospital over a period of one year compared to just 50.2% of women without insurance (Schieber et al, 2012). Other studies have also shown that health seeking can be influenced by the benefit design (Vellakal, 2012). On the other hand, many people who are ostensibly covered might not be seeking services at all (Research Institute, 2009; Krishnaswamy, 2011; Rathi, 2012). Health-seeking behaviour was not included in this study and may warrant more research on its own.

Standard packages to contain cost of care. A number of studies have tried to assess costs of care in developing countries (Mills, 1990; Asante, 1998), most of which used secondary data. More reliable studies did not cover sufficient data from developing countries (Shepard et al, 1998) to be able to serve as a basis for premium determination. In many jurisdictions there were also attempts to aid in price setting by formulating a standard basic package of benefits, such as the Kenya Essential Package for Health (KEPH), which integrates health programmes into a single package that focuses on interventions to improve health in each of six defined cohorts of the human development cycle, and to organize the delivery of services around six well-defined levels of care. Such a standardised basic package of benefits that cover the most common diseases as identified, may be helpful to index the relevant treatment cost for different locations. However, this requires further analysis.

Unsustainably high administration and management costs. In all four countries the cost of administration and management of HMI schemes are unsustainably high. In the Afya Yetu scheme, in Kenya, administration cost as a percentage of premiums has gone from 45% in 2009 to 72% in 2011 and 51% in 2012 (Koven et al, 2014). In India private insurers' administrative costs may be as high as 40% to 80% of total premiums (BearingPoint, 2008; Koven et al, 2014). In 2011 the average cost of administration for the top ten schemes was 39% (Koven et al, 2013). These schemes represent more than 90 million beneficiaries. Suitable methods need to be implemented to reduce inefficient administration and management methods.



“In all four countries the cost of administration and management of HMI schemes are unsustainably high. In India private insurers' administrative costs may be as high as 40% to 80% of total premiums.”

Implementing technology can reduce the costs of administration and management. Fragmentation not only prevents cross subsidisation of treatment costs, it also prevents schemes from reaching scale that will drive down the cost of administration. In addition, scheme sponsors continue to suffer from the consequences of legacy thinking and administration systems that import cumbersome processes and high operating costs from traditional health insurance into the HMI environment. Examples of cost reduction strategies made possible by today's technology are automated claims adjudication and mobile enrolment/payment systems. Automated claims processing allowed Chartis⁶ to reduce the claim handling time by 30%, enhance adjudication accuracy and achieve a 5% reduction in indemnity expenses (*Pegasystems*). Although this example is in respect of general non-life business, the same technology can be applied in respect of HMI business to reduce the cost of operations and claims administration whilst improving the accuracy and speed of claims adjudication and exception reporting.

Provider network management

Improvement in purchasing methods can free up financing. Resource allocation and purchasing mechanisms determine for whom to buy, what to buy, how to pay, and at what price. Purchasing includes the arrangements used by purchasers of healthcare services to pay healthcare providers. Resource allocation and purchasing have important implications for cost, access, quality and consumer satisfaction. Better purchasing also provides efficiency gains and better value for money. When done optimally this effectively creates additional "financing" for the health system (*Gottret and Schieber, 2006*).

Adequate control measures needed to reduce over-provision. The results of costing studies from Kenya are characterized by high variability and provider payment mechanisms that often incentivise over-provision (*Mathauer, 2011*). In Colombia, frequent conflicts between insurance companies and local health authorities on the subject of what is included in the benefits package have led to increasing numbers of court cases that have challenged exclusions and refusals to authorise treatment resulting in uncontrolled escalation of costs (*Lamprea 2013*). Similar challenges are also found in India (*Research Institute, 2009; Krishnaswamy, 2011; Rathi, 2012*). In Ghana outpatient utilisation has increased from 0.43 visits per member in 2005 to 3.05 visits per member in 2011 and whilst membership has increased by 586% over this period, the cost of treatment has increased by 1300% (*Ghana Ministry of Health, 2011*). Purchasing arrangements and control measures in respect of over servicing and over use must surely be revisited as part of the structuring of HMI schemes.

Inpatient versus outpatient benefits

Lack of outpatient coverage increases OOP. By far the majority of HMI schemes only cover inpatient benefits. This is based on the perceived risks and costs associated with outpatient and individual plans. However, it should be questioned whether they address the overall financial burden of ill-health experienced by the poor. Although an inpatient admission would be a catastrophic event for most poor people, outpatient care constitutes a much higher share of overall health expenditure than inpatient care and much of this continues to be out-of-pocket. In addition, a chronic ailment that requires regular treatment on an outpatient basis can involve higher expenditures than an inpatient procedure (*Nagpal, 2013*).

Opportunity for innovative solutions to address outpatient cover. Although there is a lack of adequate actuarial information about outpatient covers, and this is exacerbated by a fear of adverse selection and moral hazard, the review of the four study countries demonstrate that the primary care outpatient needs for the majority of BPL families consist of events such as malaria, respiratory infection and diarrhoea. These should not be difficult to package in innovative ways that can be managed cost effectively through better purchasing arrangements, such as diagnosis related tariffs for primary care; and the use of currently available technology, such as biometric identification and mobile transaction systems.

Escalation of medical service costs. Experience has also shown that although the probability of hospitalisation and the days of hospital stay are relatively steady, the medical service cost keeps rising. Therefore, when estimating the expected amount of claims in the future, the rising medical service cost must be taken into account and mechanisms may need to be found to control this cost escalation, possibly by insurer-owned healthcare facilities. Further study will be required in some areas, particularly in respect to formulating a basic basket of treatment for the most commonly found outpatient and inpatient events that can be used for indexing a basic tariff guideline. However, overall, it is believed that sufficient common areas exist that allow for the development of a pricing tool for health microinsurance.

In conclusion

This note has focused on some of the key factors that directly impact on health insurance claims. It has shown that it is possible to draw on past experiences in order to devise better ways of dealing with these factors, so as to inform the determination of HMI premiums. The high level of similarity in the factors that lead to health insurance claims costs in these countries suggests that a standardised approach to pricing HMI products is feasible and that, with minor adjustments for specific locations, this would be suitable for most emerging market settings. Further, public sources of data exist that can assist stakeholders in HMI with price setting.

⁶ Chartis is a world leading property-casualty and general insurance organization serving more than 70 million clients around the world (pega.com/customers).

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