The Impact of Community-Based Health Insurance on Access to Care and Equity in Rwanda

With support from The Rockefeller Foundation’s Transforming Health Systems initiative, Management Sciences for Health (MSH) collaborated with University of Rwanda’s College of Medicine and Health Sciences School of Public Health (UR-CMHS-SPH) and the Government of Rwanda’s Ministry of Health (MOH) between May 2012 and July 2015 to assist Rwanda’s national Community-Based Health Insurance (CBHI) program.

The project had three components:

➤ Examine the effect of the CBHI program on access and equity, especially on the use of health services and household financial protection;

➤ Document the history of the CBHI program and identify key lessons learned in its development and implementation; and

➤ Strengthen CBHI financial management by developing a financial management tool.

BACKGROUND

Rwanda is a predominantly rural East African country with a population of 10.5 million people. The country has made good progress since the genocide in 1994 with significant improvements in development and health indicators.

Immediately after 1994 public health services were free of charge and were supported by donors, but in 1996 user fees were re-introduced in public and mission facilities because of dwindling donor support. This resulted in a reduction in health service utilisation and a lack of financial protection. To help address these challenges community-based health insurance (CBHI) was piloted in 1999 and was scaled up nationwide in 2005.
CBHI is one of the key elements identified to achieve the goal of universal access to health care, which is central to the Rwandan government’s strategy to become a middle-income country by 2020. Other key elements include performance-based financing to incentivize improved service delivery and quality improvement initiatives. Rwanda’s national CBHI scheme (commonly known as mutuelles de santé) is now one of the largest public health insurance schemes in sub-Saharan Africa.

CBHI schemes can be broadly defined as prepayment plans for health care that operate at a community level. In the case of Rwanda, CBHI is based in the communities but is part of a national scheme. The objectives of Rwanda’s CBHI scheme are to provide equitable, affordable access to health care and to prevent people from incurring catastrophic health care costs.

One critical element of Rwanda’s CBHI structure is the involvement of, and linkages between, each level of the health system, including risk pooling at the national level. CBHI is coordinated at the district level, where each of the 30 districts has a pooled-risk fund; each health center has a CBHI branch (total of 479); and each village has a CBHI mobilization committee. Each mutuelle at the district level is composed of as many CBHI branches as the number of health centers. Premiums are collected at the community level and are used to reimburse public health care providers for services.

In January, 2007, standard premium and copayment rates were introduced for the whole country, replacing the previous rates that varied across the districts. The standard premium was RWF 1,000 per person per year and the whole family had to be covered. Matching contributions of RWF 1,000 and the costs of care for vulnerable groups and the poor were paid by the government and the Global Fund Against AIDSTB and Malaria (Global Fund). Copayments were set at RWF 200 per visit at health centers and 10% of the total bills at hospitals.

In 2010, the Government revised the CBHI policy to strengthen the system’s financial viability and management capacity, and to reinforce equity in citizens’ financial contributions. The access and equity study sought answers to three key questions:

- What barriers and inequities exist, if any, to enrollment?
- What barriers and inequities exist, if any, for members seeking care?
- What financial protection does CBHI provide regarding the costs of obtaining health care?

Table 1.
CBHI categories and corresponding premiums per person

<table>
<thead>
<tr>
<th>Ubudehe categories</th>
<th>Corresponding CBHI categories</th>
<th>Annual individual amount per category</th>
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<tbody>
<tr>
<td>1 &amp; 2</td>
<td>1 (fully subsidized by Government and development partners) ~ 24% of the total population</td>
<td>RWF 2,000 USD 2.76</td>
</tr>
<tr>
<td>3 &amp; 4</td>
<td>2 ~ 66 % of the total population</td>
<td>RWF 3,000 USD 4.14</td>
</tr>
<tr>
<td>5 &amp; 6</td>
<td>3 ~ 4% of the total population</td>
<td>RWF 7,000 USD 9.65</td>
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1. Ubudehe is a process at the village-level for community decision-making. Ubudehe incorporates what is essentially a “poverty-mapping” process, which has a systematic methodology and allocates each household to one of six ordinal income and poverty-related categories differentiated by well-defined qualitative criteria.

2. The 2010 MOH Policy document does not provide other details of premiums, such as limits on numbers of family members covered or additional premiums for extra family members.


4. Using exchange rate of 725 Rwandan Francs to 1 USD on 22 June 2015 (National Bank of Rwanda)
This brief highlights the results of the impact of CBHI on access and equity in general, and the specific effect of the change in premiums in 2011. This could assist the government with making necessary policy changes and could also be useful to other countries considering or implementing CBHI.

**METHODOLOGY**

The study had two main elements, details of which can be found in separate reports:

- **Primary analysis** involving a major CBHI household survey designed specifically for this study.

- **Secondary analysis** involving a review of changes in health care utilization and financing using multi-year Integrated Household Living Conditions Surveys (EICV) conducted in 2000, 2005, and 2010, and a review of previous studies of the impact of CBHI using Demographic and Health Surveys (DHS) data.

The household survey used for the primary analysis involved interviews conducted between June and August 2013 with a representative sample of 1,330 households (6,000 individuals) enrolled in CBHI and a purposive sample of 399 uninsured households.

The data collected included health service utilization (inpatient and outpatient) using a four week and a six month recall periods for outpatient visits and inpatient admissions respectively, out-of-pocket expenditures, perceptions related to the CBHI, living standards measures like consumption, and other socio-demographic factors. Analytical methods used included:

- Descriptive statistics to explore the barriers to enrollment and use of health services,

- Indirectly standardized concentration curves and indices to assess inequality in health service use,

- Decomposition analysis of the concentration index to assess the contributory factors to inequalities in health service use,

- Kakwani index of progressivity to assess the progressivity or regressivity of premiums and out-of-pocket payments.

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5. Full report is available: Kalisa I, Musange S, Saya U, Kunda T, Collins D. The Impact of Community-Based Health Insurance on Access to Care and Equity in Rwanda. University of Rwanda College of Medicine and Health Sciences, School of Public Health and Management Sciences for Health. 2015.


7. Enquete Intégrale sur les Conditions de Vie


9. UR-CMHS-SPH. December 2013. Desk review findings on the impact of community based health insurance on access and equity in Rwanda.
Financial catastrophe and impoverishment analysis, and
Regression analysis to assess significant factors associated with the use and payment for public health services.

The analysis covered the assessment of inequality in health care utilization between the poor and the better-off, the progressivity of out-of-pocket payments (how much larger payments are as a share of income for the poor than for the better-off), the incidence of catastrophic payments (those that exceed a predetermined threshold) and the incidence of impoverishing payments (those that push households into poverty).

A desk review supplementing the secondary data analysis was conducted in 2013/14 and looked at four peer-reviewed studies on the impact of CBHI that were based on household survey data. These articles examined DHS, EICV and other data through 2008 to describe trends in CBHI coverage, child and maternal care coverage, average annual household out-of-pocket health expenditures, percentage of household with catastrophic health expenditures, and CBHI enrollment. All the papers tried to highlight the effect of CBHI on access to, or utilization of, modern health services and on out-of-pocket health expenditures.

RESULTS

Enrollment and Coverage

With the national roll-out of CBHI, coverage expanded from less than 7 percent of the CBHI target population in 2003 to 74 percent in 2013.10

In particular, there has been some reaction to the current premiums that were introduced in July 2011 and this has indicated some possible barriers to enrolment. In the 2013 CBHI household survey, 67 percent of the CBHI Category 2 households surveyed said that the payment of premiums was “not easy at all” (Figure 1) and 22 percent of them said they would not re-enroll in CBHI next year, mostly because they could not afford the premiums. The ability to pay copayments was also identified as an issue, but less so, with 15 percent of CBHI Category 2 households saying payment was “not easy at all” and 21 percent that it was “not that easy” (Figure 1). Sixty-seven percent of these households also reported not being able to access services before completing the payments.

A comparison of the numbers of people in CBHI categories with the per capita income quintiles indicates variation in enrollment among beneficiaries across income categories (see Figure 2). The comparison shows that CBHI Category 1 members are found in all quintiles, with almost as many in the richest quintile (25.9 percent) as in the poorest quintile (26.4 percent). Similarly, Category 2 members are found in all quintiles, with as many in the poorest quintile as in the richest. A re-examination of the Ubudehe categorization, a process already underway by the Government of Rwanda, can assist in improving equity of health utilization and finance among CBHI beneficiaries.

Although the introduction of the graduated premiums has reduced inequity, some still persists among Category 2 members, who comprise around 73 percent of members and range from “poor” to “less poor.” Further evidence of some hardship for CBHI Category 2 households is provided in the same 2013 CBHI household survey in which 46 percent of households reported that they financed their

10. The membership target populations used by the districts have reportedly been the estimated total population less the estimated number of people insured under other schemes.
premiums from personal savings and 35 percent from selling items such as small animals (see Figure 3). A further 10 percent get funds through Ikimina\(^{}\text{11}\) and 5.7 percent from borrowing and assistance.

The household survey also included interviews with a non-representative sample of uninsured households. Similar to the results reported for the insured, the great majority (90 percent) of the uninsured households reported being in CBHI category 2 compared to 9 percent and <1 percent in CBHI categories 1 and 3 respectively. This indicates that the some of the indigent population remains uninsured even though their premium would be fully paid by the Government of Rwanda. Fifty-one percent of these uninsured people were not able to pay all the costs incurred the last time they sought health care with these people reporting problems paying for medicines (72 percent), laboratory tests (51 percent), and hospitalization (13 percent). Fifty-five percent said that they had at least once avoided seeking care when it was needed. Eighty-nine percent of uninsured respondents reported that they were previously enrolled in CBHI, and nearly all of them said they stopped because they could not afford the premiums.

**Health Care Utilization**

CBHI appears to have had a positive impact on health care utilization, with significant increases since 2003. This is the general conclusion of the desk review which used DHS and EICV data to conclude that CBHI was associated with an increase of utilization of modern health services and decrease of out-of-pocket health expenditures, but noted that evidence on the impact of CBHI on equity in financing was lacking\(^{}\text{12}\). These results are also substantiated by the Rwanda Health Management Information Systems data, which show that outpatient utilization per capita (total population) rose from 0.31 in 2003 to 1.0 in 2014.\(^{}\text{13}\) CBHI is only one factor; however, since the government has also made major improvements in the availability of services, increases in resources such as staffing and medicines, and quality of care. Performance-based financing has also contributed significantly to these improvements.

Findings from the desk review indicated that insured persons in Rwanda were much more likely to use modern health care in general. Mothers who had health insurance of any type were twice as likely to use modern health services than uninsured mothers in the event of cough or fever. Women covered by health insurance, such as CBHI, were 1.6 times as likely to deliver in a modern health facility as women who didn’t have health insurance.\(^{}\text{14}\) In addition, children were more likely to use medical care when needed in 2008 compared to 2005.

EICV trend analyses showed that outpatient utilization across the whole population in 2000 was highly inequitable, with 10 percent of services used by the poorest quintile and 40 percent used by the richest quintile.\(^{}\text{15}\) By 2010, the situation had improved, with 14 percent of outpatient visits made by the poorest quintile and 27 percent by the richest quintile.

\(\text{11}\). A community-based loan scheme.

\(\text{12}\). UR-CMHS-SPH. December 2013. Desk review findings on the impact of community based health insurance on access and equity in Rwanda.


\(\text{14}\). UR-CMHS-SPH. December 2013. Desk review findings on the impact of community based health insurance on access and equity in Rwanda.

The increases in utilization—resulting from CBHI, as well as improvements in reproductive health, immunization, treatment of malaria, TB, and HIV/AIDS, scale-up of performance-based financing, community health, and quality assurance programs—have contributed to significant improvements in maternal and child health indicators across the years.

Table 2. Progress on maternal and child health indicators, 2000–2015 (Demographic and Health Surveys)

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<tr>
<td>Neonatal mortality rate (per 1000 births)</td>
<td>44</td>
<td>37</td>
<td>27</td>
<td>20</td>
</tr>
<tr>
<td>Infant mortality rate (per 1000 births)</td>
<td>107</td>
<td>86</td>
<td>50</td>
<td>32</td>
</tr>
<tr>
<td>Under five mortality (per 1000 births)</td>
<td>196</td>
<td>152</td>
<td>76</td>
<td>50</td>
</tr>
<tr>
<td>% of children 12-23 months fully vaccinated</td>
<td>75</td>
<td>80</td>
<td>90</td>
<td>93</td>
</tr>
<tr>
<td>Maternal mortality ratio</td>
<td>1071</td>
<td>750</td>
<td>476</td>
<td>210</td>
</tr>
<tr>
<td>% of births attended by skilled health personnel</td>
<td>27</td>
<td>28</td>
<td>69</td>
<td>91</td>
</tr>
<tr>
<td>Antenatal care coverage (at least 1 visit)</td>
<td>92</td>
<td>94</td>
<td>98</td>
<td>99</td>
</tr>
<tr>
<td>Unmet need for family planning</td>
<td>36</td>
<td>39</td>
<td>21</td>
<td>19</td>
</tr>
<tr>
<td>Women 15-49 using modern contraceptive methods</td>
<td>6</td>
<td>10</td>
<td>45</td>
<td>48</td>
</tr>
<tr>
<td>Contraceptive prevalence rate</td>
<td>-</td>
<td>17</td>
<td>52</td>
<td>53</td>
</tr>
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</table>
The 2013 CBHI household survey shows that among CBHI members, utilization is quite equitable with 20 percent of outpatient visits made by the poorest quintile, which is almost equivalent to the 22 percent by the richest quintile (see Figure 4). However, the situation is different for public hospital outpatient visits where the poorest 40 percent of CBHI members account for only 25 percent of visits compared with the wealthiest 40 percent who account for 65 percent of visits. The structure of copayments may be one explanation for this anomaly.

Inpatient admissions also became somewhat more equitable across the whole population, changing from 8 percent by the poorest quintile and 33 percent by the richest quintile in 2005 to 18 percent by the poorest quintile and 30 percent by the richest quintile in 2010. Among CBHI members, the situation found in 2013 was quite equitable, with 19 percent used by the poorest quintile and 22 percent used by the richest quintile (see Figure 5).

The increases in utilization resulting from CBHI have, together with other factors, contributed to significant improvements in health indicators, especially for the poor. For example, key maternal and child health indicators have dramatically improved (see Table 2, left).

**Financial Risk Protection and Equity**

The desk review shows clearly that being a CBHI member substantially decreased out-of-pocket expenditure, in some cases by as much as 90 percent. This was consistently observed across all quintiles of households and for most of the categories of health expenditures (including for consultation, drugs, and hospitalization).

The incidence of financial catastrophe resulting from out-of-pocket payments for health services has also substantially decreased between 2000 and 2010, with the proportion of all households (insured and uninsured) spending over 10 percent of household consumption falling from 11 percent in 2000 to 2 percent in 2010. This has been a major conclusion of most studies. In terms of CBHI members, the proportion of households spending over 10 percent of household consumption was only 0.4 percent according to the 2013 CBHI household survey.

16. As the proportion of the population covered by CBHI grows one would expect a closer correlation between equity of utilization for the whole population with that for CBHI members.
17. The figure for 2000 was not available.
18. UR-CMHS-SPH. December 2013. Desk review findings on the impact of community based health insurance on access and equity in Rwanda.
20. UR-CMHS-SPH. December 2013. Desk review findings on the impact of community based health insurance on access and equity in Rwanda.
Results from the 2013 CBHI household survey demonstrate that CBHI has substantially decreased out-of-pocket expenditure for members, in some cases by as much as 90 percent. This is consistent across all quintiles of households and for most of the categories of health expenditures.

The EICV data show that equity of out-of-pocket health expenditure also improved over time.\(^\text{21}\) Between 2000 and 2010, the ratio between rich and poor of 3.8 to 6.2 flattened considerably to 1.1 to 1.3 (see Figure 6).

However, there is still room for improvement. In 2013, among CBHI Category 2 members, out-of-pocket health service payments was still regressive, with the poorest quintile spending slightly over 0.25 percent of their income on out-of-pocket health expenditure compared to the richest quintile that pay about 0.11% of their income. And the application of a flat copayment is regressive by nature, and that is also the case here since CBHI Category 2 (less poor) and 3 (well-off) members pay the same copayment.

**Member Satisfaction**

Apart from the issues of access and equity mentioned above, the 2013 CBHI survey indicated that members across all categories felt very positive about the scheme, and respondents stated that the benefits of CBHI membership included lower health care costs (97 percent), better access to drugs (73 percent), and timely receipt of prescribed treatment (87 percent). However, only 23 percent and 24 percent of surveyed members said there was a benefit in terms of hospital access and free ambulance services, respectively.

**CONCLUSION**

This research has shown some of the successes of CBHI as well as the challenges. CBHI has greatly increased access to health care services and reduced the burden of health care costs, especially for the poor; and it has contributed to significant health improvements for ordinary Rwandans. However, many households say they find the costs of premiums and copayments unaffordable. The continued efforts of the Government of Rwanda to ensure access and equity are important so that CBHI can continue to benefit poor Rwandans and build on the impressive achievements made to date.

From its inception through the period of this study, CBHI was under the management of the Ministry of Health, but in July 2015 it was handed over to the Rwanda Social Security Board. It is hoped that research into the functioning and impact of CBHI will carry on so that Rwanda and other countries can continue to learn from this innovative and important scheme.