



AFRICAN STRATEGIES FOR HEALTH

COST-EFFECTIVENESS OF REPRODUCTIVE HEALTH VOUCHERS AND COMMUNITY-BASED HEALTH INSURANCE IN UGANDA



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Background

The underutilization of maternal health services is a key obstacle to reducing maternal and neonatal morbidity and mortality, particularly in sub-Saharan Africa. Poor quality of services, cost, and distance can deter women from seeking care for themselves or their babies. To enhance the use and provision of quality maternal care in the region and achieve the global

goals of ending preventable child and maternal deaths, donors and governments are looking to increase the use of quality care through targeted incentives and economic subsidies.

When planned and used appropriately, financial incentives have proven effective in improving utilization and quality of maternal and child care.¹ Schemes emphasizing financial incentives range from being universal with a “broad” benefits package (e.g. national health insurance) to those targeted with a “narrow” benefits package (e.g. maternal health voucher programs). These interventions also help to tackle challenges related to patient affordability, especially those associated with out-of-pocket (OOP) payments and the relative lack of prepayment mechanisms.

Community-based health insurance (CBHI) and reproductive health vouchers (RHVs) are two financing interventions that have been shown to improve access to key health services. Greater levels of pooled prepaid funds and accompanying broader health coverage, as with CBHI, can lead to higher levels of access to care and lower mortality.² Vouchers can serve to move toward a social health insurance system hinged upon the principles of universal health coverage (UHC), especially as organizations responsible for the administration of vouchers can work to define insurance benefits, monitor contract adherence, and include private providers in accreditation and quality assurance systems.³

ABOUT ASH

African Strategies for Health (ASH) is a five-year project funded by the U.S. Agency for International Development’s (USAID) Bureau for Africa and implemented by Management Sciences for Health. ASH works to improve the health status of populations across Africa through identifying and advocating for best practices, enhancing technical capacity, and engaging African regional institutions to address health issues in a sustainable manner. ASH provides information on trends and developments on the continent to USAID and other development partners to enhance decision-making regarding investments in health.

In Uganda, previous financial barriers to health, such as the introduction of user fees at the point of care, have resulted in decreases in utilization of curative health services of as much as 55%. Even though the removal of user fees following national policy changes resulted in increases as high as 30% in utilization of the same services, many patients faced higher health expenditure due to the unavailability of medicines and the use of private providers.^{4,5} Appropriate financial incentives may be used to alleviate financial burden while also enhancing the use and provision of quality maternal care in Uganda.

In an effort to understand the feasibility and impact of economic subsidies in increasing the utilization of maternal health services in Uganda, USAID's Africa Bureau and its project, ASH, in collaboration with colleagues from USAID/Uganda, Makerere University (Uganda), Mzumbe University (Tanzania), and Brandeis University (US), undertook a study examining the cost-effectiveness of reproductive health vouchers and subsidized CBHI programs, interventions which aim to improve access and promote equity, financial protection, and quality of care for women of reproductive age (WRA) in Uganda, almost 20% of the rural population.⁶ This technical brief provides an overview of the methods, findings, and key policy options and recommendations for researchers, policymakers, and program managers.

Country Context

In Uganda, almost 18% of deaths of women aged 15–49 are maternal, and utilization rates of key maternal health services remain low (see box below).⁷ Increasing women's access to maternal services while simultaneously addressing service quality is an important strategy for addressing the maternal mortality rate. Most maternal deaths can be prevented with access to quality and skilled antenatal care (ANC), appropriate facilities for deliveries, postnatal care, and family planning. The documented barriers to women's use of maternal health services in Uganda include transport costs, long distances to health facilities, high service fees, insufficient supplies of drugs and equipment, poor provider training, and poor treatment of patients.⁸

Improving health care financing is one strategy for increasing utilization of maternal health services. Uganda's Second National Health Policy specifies that the sector shall establish overall adjusted health financing mechanisms based on prepayment and financial risk pooling aimed at broadening UHC and social health protection.⁹ However, as of 2013, almost half of health financing, as a share of total health expenditure, has been left to households in the form of OOP expenditure. Almost 33% of health care is financed in similar ways in Kenya, 31% in Tanzania, 40% in Burundi, and 11% in Rwanda—all East African Community countries, like Uganda.¹⁰ In 2010, 28% of Ugandan households experienced catastrophic health expenditures after paying OOP costs.¹¹ The absence of adequate risk-pooling arrangements is an obstacle to ensuring access to needed health care and leaves households at risk of catastrophic OOP payments in the event of illness.

Voucher Programs

Well-implemented voucher programs can markedly improve access to maternal services and also increase quality of service provision.¹² In Uganda, utilization of services has improved for facility-based deliveries and ANC services.¹³ In 2011, over 50,000 vouchers were sold in Uganda, and 40,000 were redeemed for the delivery portion of the service package.¹⁴ A detailed study of voucher programs from Western Uganda showed that the rate of deliveries for women with RHVs was 9.4 percentage points higher than at those without vouchers.⁴

The Uganda Reproductive Health Voucher (RHV) program examined in this study using secondary data, started in 2006 and was financed by the German Development Bank (KfW) and the World Bank through the Global Partnership on Output-Based Aid (GPOBA). Managed by Marie Stopes Uganda, the program started providing access to sexually transmitted infection (STI) diagnosis and treatment services through private pharmacies and health care providers, and in 2008 expanded to safe deliveries, eventually ending in 2012.¹⁵ Another scheme has recently included family planning services. Eligible pregnant women

Maternal Health In Uganda (UBOS, 2012)

- 48% of pregnant women make four or more ANC visits during their pregnancy
- 58% of births are assisted by a skilled health provider
- 57% of births take place in health facilities
- 33% of women receive postnatal care in the first two days after delivery
- 13% of women receive a postnatal checkup within six days
- 2% of women receive a postnatal checkup within one hour
- 2% of women experience obstetric fistula



Photo by RUI PRES

could purchase a RHV for a subsidized price of US\$1.40 from a community-based agent. The RHV covered four ANC visits, delivery care, referral and treatment of eventual complications, and a postnatal care visit from the accredited voucher service provider. The RHV gave women the right to access services at quality-assured health facilities free of charge at the point of service. The providers were either private for profit (PFP) or private not-for-profit (PNFP) facilities, and offered basic or comprehensive emergency obstetric care depending on their capacity. That same voucher then enabled the service provider to claim payment for the services provided to the voucher-holding client. A key feature was the direct link between the subsidy to the intended beneficiary on the demand side and the desired output on the supply side.

Community-Based Health Insurance

Enrollment in health insurance is low in Uganda. In 2011, only 1.2% of women and 1.8% of men were enrolled in health insurance, although there are estimates citing coverage of 5 to 10% of the catchment population for some CBHI schemes.^{16,17} Low enrollment rates are primarily due to the lack of basic understanding of scheme design and operations, affordability of premiums, and supply-side issues such as the absence of a coherent policy framework to promote CBHI amidst a backdrop of user-fee abolition in the public sector.¹⁸ CBHI schemes were first created in Uganda in 1995; there are now 26 such schemes with the majority in the southern part of the country. The umbrella organization, Uganda Community-Based Health Financing Association (UCBHFA) coordinates the schemes, most of which are hospital managed. Services are offered at contracted PNFP facilities and exclude referral; they partly subsidize the cost of CBHI clients through ongoing donor subsidies.

Various issues plague CBHI in Uganda, including a high copayment structure of around 20% of total costs, inadequate targeting of poorest populations, and provision of free care in government facilities with poor quality of care.⁵

The CBHI schemes examined in this study include the following:

1. **The Medical Insurance for Low Income (MILO)** scheme has a monthly premium of \$2.50 and covers teachers, motorcycle transporters, and fishermen in various parts of Uganda.
2. **The Saving for Health Uganda (SHU)** scheme offers insurance products specifically targeting pregnant women, while also providing coverage of transporters to bring pregnant women to contracted health care facilities.
3. **Six health care cooperatives (coops)**, which are associations of health care providers, offer benefit packages to groups which share risk by paying quarterly premiums directly to the provider.

For both MILO and SHU schemes, premiums are collected from individuals who voluntarily enroll, and the schemes are by design nonprofit in nature, formed on the basis of an ethic of mutual aid, solidarity, and collective pooling of health risks in which the members participate effectively in its management and functioning.¹⁹ Through enrollment in CBHI, beneficiaries'

payments are disassociated from the time health care is used; this facilitates a financial buffer between service fees and seasonal fluctuations in income in communities.²⁰ Unlike vouchers, the schemes also covered immunizations and curative services; similar to the RHVs, the SHU scheme also covered transport for pregnant women to and from contracted facilities.

Methodology

This study involved collecting data from primary and secondary sources on utilization and costs for each financing scheme via desk reviews, structured interviews, and field observations from site visits, and supplementing with modeling exercises. Site visits were conducted where CBHI and voucher schemes are implemented, including Bushenyi and Mbarara districts in Western Uganda and health maintenance organizations (HMOs) in the capital, Kampala. Costs were gathered from the perspective of the sponsoring organization and the overall health system (including costs paid by households and governments).

The costs and impact of each scheme were assessed using the following data:

- **Costs of subsidizing CBHI** for poor WRA were modeled based on costs of normal delivery, coverage or enrollment rate, and socioeconomic status. In particular, information was gathered from the MILO scheme, the SHU scheme, and health care cooperatives (coops).
- **Costs of deliveries reimbursed through RHVs** at various health facilities were obtained from secondary data of the Uganda RHV program.²¹ Costs also included provision of round-trip transportation for pregnant women.
- **Impact of both financing strategies** was obtained through the equivalent increase in facility-based deliveries that would lead to lives saved and disability-adjusted life years (DALYs) averted. In Uganda, this estimate indicates the value of lives saved with illness and disability prevented. The DALYs are a combination of lower maternal and infant morbidity and mortality. Cost-effectiveness analyses using costs per DALY averted have become standard for health programs in low- and middle-income countries.²²

There are several data limitations: neither RHVs nor CBHI have been conclusively evaluated in the context of controlled trials. Observational data from studies about the net impact of vouchers on health delivery rates attempt to control for confounding influences, but they are based on limited geographical areas. Unequal changes between control and intervention areas in the health system or economy during the study period could confound the findings.^{23,24} The impact of health insurance is primarily based on the MILO scheme and, finally, data are limited for estimating the cost of insurance specifically for pregnant women, who are known to need reproductive health services over the coming months, compared to a product for the general population or even WRA, who, on average, have less immediate service needs.

Key Findings

Key findings related to the costs and impacts of each scheme are presented here.

RHV Program Findings

Based on secondary data, the costs of health facility delivery services at public and private facilities ranged from \$17.62–\$18.79, and excluded OOP payments made by patients for delivery and referral purposes. The transport and health facility service vouchers' reimbursement varied between \$1.80–\$4.50 and \$2.87–\$5.75, respectively. Private facilities received 100% of the voucher's nominal reimbursement value, whereas public

facilities received at most 75% of the standard reimbursement for the value since the government provided funds toward maintenance, medicines, and personnel. A 9.4 percentage point increase in attended deliveries as a result of vouchers increased the number of health facility births by 3,958 births per million persons in Uganda.⁴ This increase averted 1,356 DALYs per million persons.

The incremental cost-effectiveness ratio (ICER) per DALY averted for the voucher program was \$302/DALY (see Figure 1 for details).

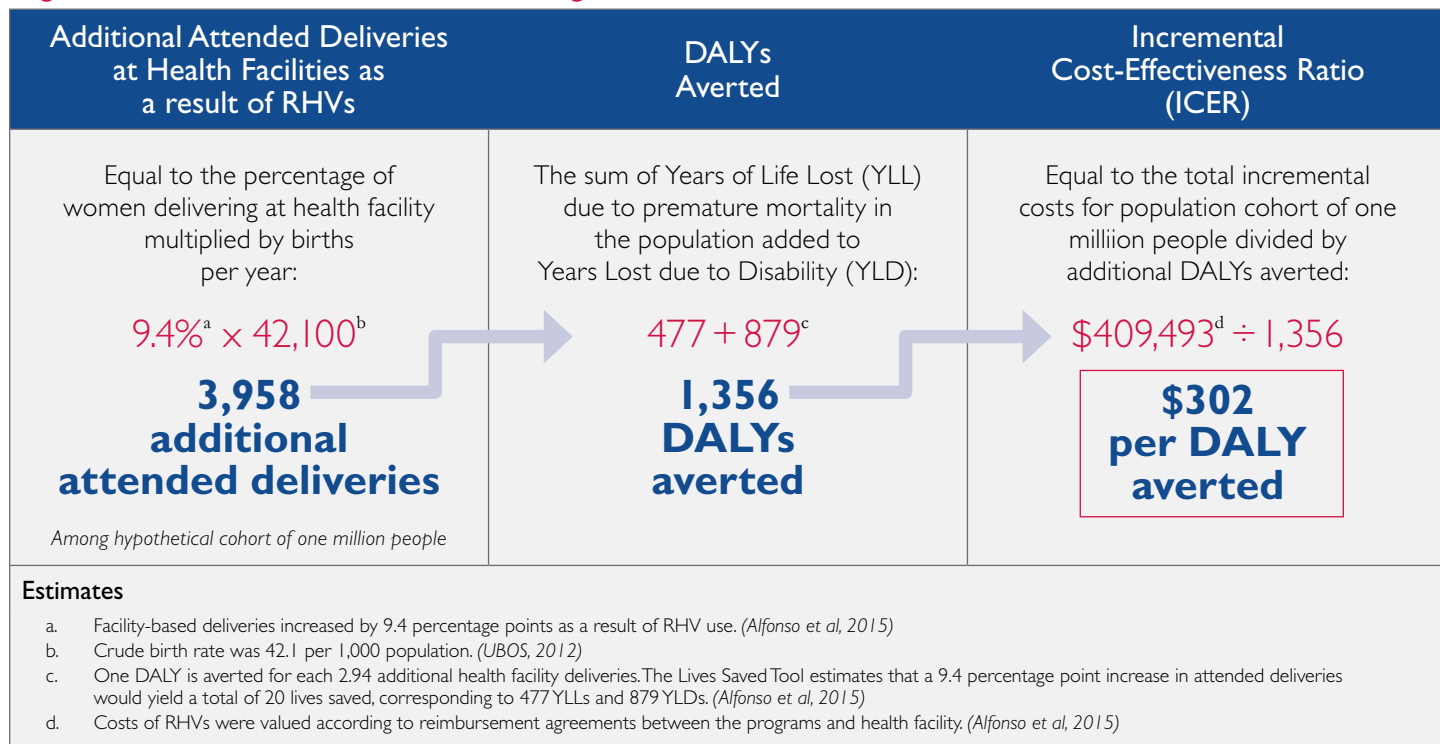
Community-Based Health Insurance Scheme Findings

For both the MILO and SHU schemes, CBHI is offered to pregnant women, whose premiums are subsidized by other members. The annual cost per person of insurance under these schemes is \$30. As there were limited data showing the impact of CBHI on utilization of deliveries in Uganda, it was estimated from studies in similar settings in neighboring Rwanda that a 1% insurance increase in the health insurance enrollment rate of the entire population would raise the proportion of facility deliveries by 0.9% from its initial value. Both countries have a mixed health system that combines public and PNFP facilities, and a similar 2013 per capita gross national income in purchasing power parity (\$1,370 for Uganda, \$1,430 for Rwanda), so Rwanda's experience should be informative for Uganda.^{25,26} Since data from SHU showed malaria to be the predominant cause of ambulatory visits among pregnant women, added CBHI coverage of maternity and malaria services would correspond to 19.9 DALYs gained. If insurance were offered as a household package to the average household size of five persons, including the pregnant woman, the benefits would be five times 5.6

Vouchers can contribute to the achievement of broader health system coverage through the following features:

- Can be used for public health and preventative care
- Provide a mechanism to include private sector providers, so as to increase the quantity and quality of health services
- Can further advance equity by subsidizing the poorest and providing effective coverage to vulnerable groups
- Base the selection of providers on objective quality indicators, and reimbursements are made upon verified results through the voucher management agency, which in turn helps to promote quality through improvements in health facility infrastructure, numbers of medical staff, and replenishment of supplies and stocks.

Figure 1. Costs and Effectiveness of RHVs in Uganda



CBHI schemes have been shown to contribute to achievement of health system goals through improvements in the following dimensions:

- Degree of financial protection as measured by the numbers of households covered by CBHI that avoid excessive or catastrophic health expenditure
- Equity in utilization of health services
- Financial and administrative sustainability
- Provision of a broader package of services

DALYs (from general insurance) plus 14.28 DALYS (from coverage for pregnancy-related services).²⁷ The benefits of being enrolled would amount to 42.3 DALYs averted.

The costs of subsidizing CBHI for a pregnant woman over one year would be \$59.26; this estimate accounts for the costs of the package under SHU and MILO, which is approximately \$30, and the cost of a delivery. Subsidized CBHI relies more on local administration, whereas vouchers in Uganda and some other countries receive support from international organizations. As international involvement for management in RHVs is reduced, the administrative costs per person are likely to fall over time. Based on these estimates, the cost-effectiveness ratio was \$298 per DALY averted as calculated in Figure 2.

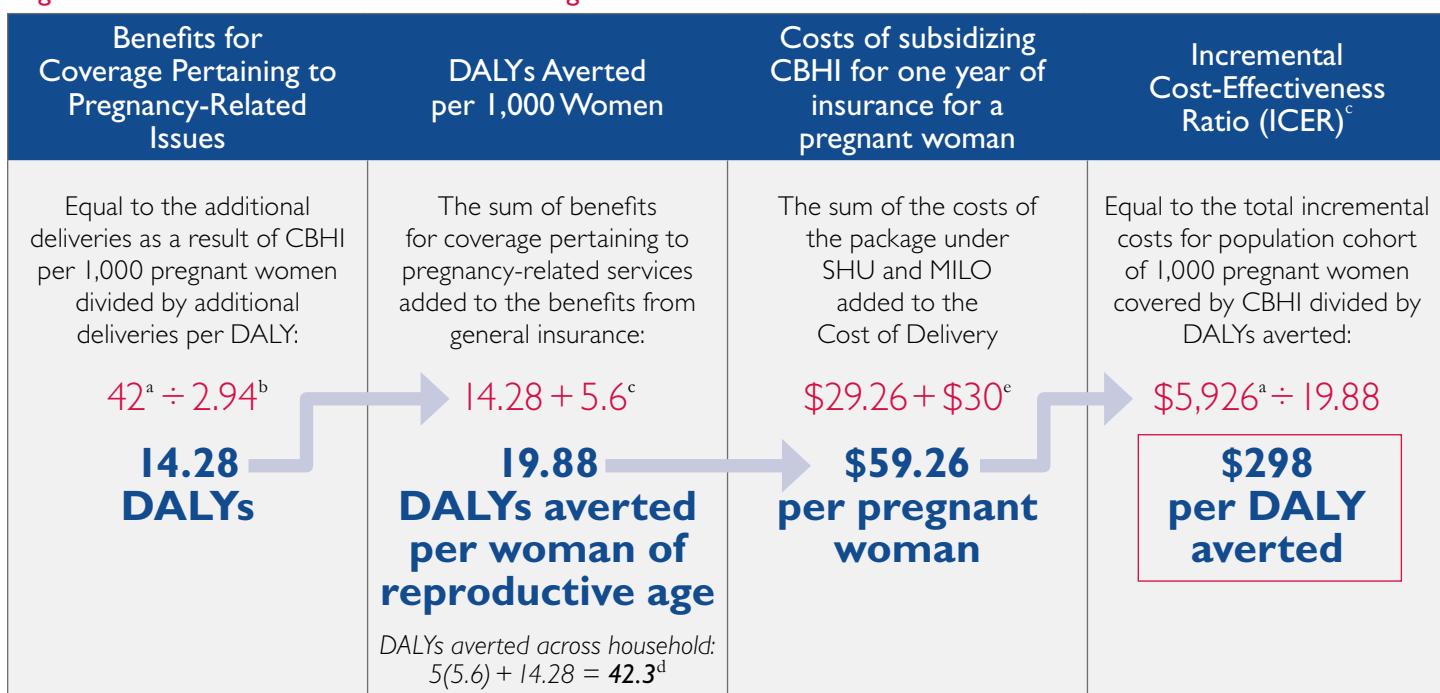
Key Policy Options and Recommendations

Both voucher programs and subsidized CBHI improve access to care and increase uptake of maternal health services. Key policy options and recommendations considering the importance of these interventions within a broader health system are presented on the following pages.

- I. Both vouchers and CBHI schemes are highly cost-effective (at \$302 and \$298 per DALY averted, respectively) since they are less than Uganda's per capita gross domestic product (GDP) of \$510 per capita. According to the World Health Organization, a service is considered highly cost effective if it can avert a DALY at a cost below the country's GDP per capita.²⁸

Recommendation: CBHI subsidies are consistent with the broader policy of UHC supported by EAC member states. As with RHVs, subsidized CBHI should include outreach to encourage poor women to deliver at health facilities, transportation to and from health centers for deliveries, and incentives to health workers for increased volume and improved quality of health services. Enrollment in CBHI can be increased by reassessing challenges in the beneficiaries' ability to pay premiums; income constraints for the poor can be tackled by introducing income-generating activities, or by scaling contributions based on the location of contributors' distance to health facilities, while also sensitizing beneficiaries on the potential benefits of CBHI such as prepayment. Further,

Figure 2. Costs and Effectiveness of CBHI in Uganda



Estimates

- a. Subsidized CBHI would cover 10 percent of the population. The share of births delivered at a health facility for women in the poorest wealth quintile was 42.2%.
- b. One DALY is averted for each 2.94 additional health facility deliveries. (Alfonso et al, 2015)
- c. 10% increase in CBHI would avert 5.6 DALYs from malarial illness in pregnant women.
- d. Since CBHI is offered at the household level, assume an average size of five persons per household. (UBOS, 2014)
- e. Cost of MILO and SHU package of services is approximately \$30. (International Medical Link, 2014)



CBHI schemes should ensure enrollment of entire households so as to avoid adverse selection. The community can also play a broader role in determining the advantages of CBHI for themselves, for example, by exploring various benefit package configurations, and by monitoring performance of providers.

2. Since RHVs and CBHI schemes both ensure adequate targeting of public health expenditures to vulnerable groups through sliding-scale fees or premiums, policymakers can use these strategies to accelerate the equity goals of UHC.

Recommendation: Vouchers and subsidized CBHI can both play a role in improving equity within a health system. Enrollment fees can be based on a sliding scale whereby the most affluent would pay close to the actuarial cost of the services, and the intermediate group would pay a partial amount. CBHI schemes can be scaled up with enrollment fees based on a sliding scale payment structure, such as in other EAC countries.

3. RHVs and subsidized CBHI schemes can finance the use of nongovernment, government, and PFP facilities to provide quality health services.

Recommendation: Increasing the provider mix in a network of contracted facilities can extend the reach of social protection services and create additional options for patients. Further, the use of a third-party vendor (e.g. voucher management agency or claims processing unit for CBHI) can result in efficient claims processing and reimbursement, so as to issue vouchers, accredit facilities, check the quality of care, and verify services delivered.

4. Both CBHI and voucher schemes can be financially sustainable.

Recommendation: Administrative costs can be lowered by using local organizations to manage RHVs and commercial CBHI schemes. Industry standards for these types of costs can help to standardize procedure and monitor fraud. CBHI schemes can ensure that financial resources are available to reimburse providers and cover administration costs via improved financial

management and regulation. In particular, they should be able to estimate the gap between premium revenues and expenditures relating to reimbursements for health care services provided within constraints of expected membership levels. Regular reporting, maintaining up-to-date financial records, spot-check verification, and adjusting of premiums and benefits can minimize such risks. Voucher schemes should be able to estimate the optimal management to program cost ratio; in particular, voucher schemes should report on the technical efficiency or the ratio of resource inputs and service outputs that would track financial reimbursements and utilization figures.

5. Use of quality reviews or audits can be broadened through scaled up RHVs and subsidized CBHI schemes.

Recommendation: Policymakers can use regular quality reviews to identify poor-performing facilities, and offer training or mentorship to upgrade quality, while ensuring that private-for-profit facilities contribute resources to improving services. Incentives to staff or greater use of checklists may be effective ways to meet quality standards. Policymakers can incorporate strategies such as results-based financing to target providers and country governments. Certain types of provider payment can lead to efficiency gains and contribute to improved performance.

6. Local health sector leadership (including ministries of health, donors, and civil society) and the beneficiary population should be jointly involved in the management and operations of these programs.

Recommendation: Voucher and CBHI scheme managers play an important role to monitor program performance, particularly by ensuring transparent accountability mechanisms and by maintaining the strategic direction. Using incentives can improve provider participation, satisfaction, and retention of beneficiaries in the CBHI schemes and RHVs. The success of large-scale voucher programs and CBHI schemes is judged by improved management and governance, and appropriate marketing, training, claims processing, monitoring, evaluation,

and fraud control. These functions of programmatic design can yield positive public health benefits, in particular through their ability to reduce maternal mortality while increasing the number of women delivering at facilities.

7. More information on the effectiveness of CBHI schemes and RHVs is needed.

Recommendation: The examination of CBHI and RHVs should be expanded with an experimental design to more accurately measure costs, utilization, and outcomes.

Conclusion

The use of financial incentives offers great promise for expanding the coverage of maternal health services in Uganda. Both voucher programs and CBHI have proven to be cost-effective and successful in increasing utilization rates and averting negative health outcomes by facilitating access to care. Both schemes have proven to also co-exist in other locations such as in Kenya, Tanzania and Cambodia, where voucher schemes have been used to determine improvements in insurance benefits, monitor adherence for facility contracts and include private providers for service delivery.²⁹ Various countries have experimented with using a specific type of voucher scheme or donor-funded fee waiver to buy premiums for pre-identified households, while the CBHI scheme pays providers for delivering services to those who are insured. Therefore, pre-identified households receive the same comprehensive health benefits package in the same health facilities as voluntary CBHI members. Coupling the CBHI with various provider payment and quality assurance mechanisms such as capitation, and results-based financing respectively, can incentivize providers and mitigate the quality of care issues that are typically considered non-financial barriers to enrollment. Supporting the expansion of CBHI may

simultaneously contribute to the longer term goal of UHC and expansion of national-level health insurance, both of which are key commitments pertaining to social health protection across Uganda and among the EAC partner states.

Valuable lessons can be learned about the efficiency, costs, and impact of maternal health interventions with the further development and innovations across both types of financing schemes. Achieving UHC similarly requires strategies that address the manifold barriers to accessing maternal care. Appropriate identification of the poor and collection of premiums through these mechanisms can improve the targeting of key health interventions, and augment the supportive functions of health financing, leadership, and governance in accelerating progress toward reductions in maternal mortality. Scaling up voucher and CBHI schemes can further drive the vision of ending preventable maternal deaths by enabling communities and individuals to promote healthy behaviors and improve equity of access for the most vulnerable, while simultaneously advancing quality and respectful care, and also strengthening health systems. These interventions can facilitate the USAID goal of reducing the maternal mortality ratio to a global average of fewer than 70 per 100,000 live births by 2030 and to fewer than 50 per 100,000 live births by 2035 under the USAID Maternal Health Vision for Action.³⁰ Simultaneously, these strategies can also facilitate a broadening of the resource base for funding of the Uganda National Minimum Health Care Package (UNMHCP) defined under the Health Sector Strategic and Investment Plan by the Government of Uganda.³¹ Together with an existing enabling policy environment fostered by the EAC, these recommendations can be used as a road map to bolster access to key health services for women of reproductive age. ■

Scaling up voucher and CBHI schemes can further drive the vision of ending preventable maternal deaths by enabling communities and individuals to promote healthy behaviors and improve equity of access for the most vulnerable, while simultaneously advancing quality and respectful care, and also strengthening health systems.

Definition of Terms

Catastrophic expenses: If health care expenses are large relative to the resources available to the household, this disruption to living standards may be considered catastrophic. (WHO, 2000)

Community-Based Health Insurance: CBHI schemes are voluntary health insurance systems managed and operated by an organization, other than a government or private for-profit company. (EAC, 2014)

Demand-side financing: Demand-side financing (DSF) mechanisms transfer purchasing power to specified groups for defined goods and services in order to increase access to specified services. (WHO, 2010)

DALY (Disability Adjusted Life Year) represents one year of healthy life gained due to an intervention. (WHO, 2013)

Efficiency is concerned with the relation between resource inputs (costs in the form of labor, capital, or equipment) and either intermediate outputs (numbers treated, waiting time, etc.) or final health outcomes, such as lives saved, life years gained, quality adjusted life years (QALYs). (World Bank, 2014)

Financial risk protection entails reducing out-of-pocket payments thereby preventing catastrophic spending and impoverishment. (World Bank, 2000)

Out-of-pocket expenditure or costs: Household out-of-pocket expenditure on health comprises cost-sharing, self-medication, and other expenditure paid directly by private households. (OECD, 2001)

Premiums: The total amount that a facility receives each month, calculated as: (the number of services/service outcomes produced) × (the tariff for each service).

Results-based financing is defined as a cash payment or nonmonetary transfer made to a national or subnational government, manager, provider, payer, or consumer of health services after predefined results have been attained and verified. (Bellows, 2013)

Universal Health Coverage (UHC): The idea of UHC requires that every individual has access to needed quality and quantity of health care services without imposing financial risk to the people who seek such services. (EAC, 2014)

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