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Challenges in Financing Universal Health Coverage in Sub-Saharan Africa

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Summary and Keywords

Within the context of the Sustainable Development Goals, it is important to critically review research on healthcare financing in sub-Saharan Africa (SSA) from the perspective of the universal health coverage (UHC) goals of financial protection and access to quality health services for all. There is a concerning reliance on direct out-of-pocket payments in many SSA countries, accounting for an average of 36% of current health expenditure compared to only 22% in the rest of the world. Contributions to health insurance schemes, whether voluntary or mandatory, contribute a small share of current health expenditure. While domestic mandatory prepayment mechanisms (tax and mandatory insurance) is the next largest category of healthcare financing in SSA (35%), a relatively large share of funding in SSA (14% compared to <1% in the rest of the world) is attributable to, sometimes unstable, external funding sources. There is a growing recognition of the need to reduce out-of-pocket payments and increase domestic mandatory prepayment financing to move towards UHC. Many SSA countries have declared a preference for achieving this through contributory health insurance schemes, particularly for formal sector workers, with service entitlements tied to contributions. Policy debates about whether a contributory approach is the most efficient, equitable and sustainable means of financing progress to UHC are emotive and infused with “conventional wisdom.” A range of research questions must be addressed to provide a more comprehensive empirical evidence base for these debates and to support progress to UHC.

Keywords: Sub-Saharan Africa, healthcare financing, universal health coverage, out-of-pocket payments, mandatory health insurance, quality health services, tax revenue

Introduction

Universal Health Coverage (UHC) is the major health system policy focus in sub-Saharan Africa (SSA). UHC is defined as providing financial protection from the costs of using health services for all people of a country, as well as enabling them to obtain the health services that they need, where these services should be of sufficient quality to be effective (World Health Organization, 2010). Emphasis has been placed on how to finance health systems to move towards UHC. UHC gained global prominence when the 2005 World Health Assembly adopted a resolution on UHC (World Health Organization, 2005B), followed by the 2010 World Health Report being devoted to the financing of UHC (World Health Organization, 2010). The inclusion of UHC as one of the health-related Sustainable Development Goals (SDGs), adopted by world leaders in September 2015, has cemented its place on the SSA health policy agenda.

Financial protection requires that health services are funded in a way that protects individuals and households from adverse effects to their economic livelihood due to paying for healthcare, which mainly arise from out-of-pocket (OOP) payments. Promoting equity in the financing and use of health services is a key element of moving towards UHC. Equity in healthcare financing, or distributing the burden of financing health services according to individuals' ability to pay, is closely associated with financial protection. Regressive healthcare financing mechanisms, where lower socio-economic groups contribute a greater percentage of their income to funding healthcare than higher socio-economic groups, are generally viewed as inequitable. Equity in service use relates to reducing gaps between the need for a health service and the actual use of that service.

While moving towards UHC requires interventions in all aspects of the health system, the focus of this paper is on healthcare financing, and more specifically the revenue collection function of financing and to some extent the pooling function (Kutzin, 2001). Due to space constraints, it is not feasible to consider in any detail the purchasing function of healthcare financing or the range of other issues related to promoting equitable access to quality of care.

The purpose of this paper is to:

- provide an overview of the key debates and questions that have driven research around healthcare financing in SSA over the past decade and the key empirical findings of this research;
- provide an overview of how health services are financed in SSA countries and some of the challenges that face these countries in moving towards UHC; and
- outline priority areas for future research.

In preparing this paper, the authors undertook a rapid review of the research literature on healthcare financing and UHC in SSA over the past decade. The purpose of this review was to ensure that this paper provides a synthesis of key research of relevance to this topic, and to identify the areas of emphasis and gaps in research within the sub-Saharan African context.

The paper begins by providing a brief overview of healthcare financing in SSA both from a historical perspective as well as the context around the time of adoption of the SDGs in 2015. This is followed by a detailed review of experience of alternative healthcare financing mechanisms in SSA, with an emphasis on the financial protection goal of UHC, and then a brief overview of SSA experience in relation to the UHC goal of access to quality health services. The final section critically assesses existing evidence on healthcare financing that could promote progress to UHC in SSA countries and identifies priorities for additional health economics research to provide the necessary evidence-base to inform policy debates on financing for UHC.

Overview of Healthcare Financing in SSA

While health system development paths have varied across countries, it is possible to present some stylized facts about general historical developments in healthcare financing in SSA countries. The colonization of SSA countries saw the introduction of biomedical “Western” medicine, with services being financed and organized by colonial powers, largely to meet the needs of colonial officials, military personnel, and settlers (Ichoku, Fonta, & Ataguba, 2012; Mills, 1998). While these services were expanded to others over time, largely to address communicable diseases which it was feared would spread to expatriates, it was faith-based missionary facilities that played the dominant role in the provision of medical services to indigenous populations, sometimes charging nominal user fees.

Upon achieving independence, many SSA governments invested in expanding health service infrastructure and funded these services from tax revenue, accompanied by external funding which gained prominence in the post-colonial era. By the 1980s, many SSA countries faced severe economic crises and had structural adjustment programs imposed on them by global financial institutions, which required reductions in government spending and the introduction of cost-recovery user fees (Gilson & Mills, 1995). Since the 1980s, SSA health systems have generally been seen as inadequately funded and as having low staff salaries, a shortage of core supplies and poorly maintained facilities and equipment (Mills, 1998).

In an effort to address the access barriers posed by user fees, small-scale community-based health insurance schemes (CBHIs) were developed as a voluntary risk-pooling mechanism for rural communities and informal sector workers in a growing number of SSA countries. Other forms of private voluntary health insurance are very limited in most

SSA countries, but are an important component of some health systems in Southern Africa where their development was stimulated by mining companies (Coovadia, Jewkes, Barron, Sanders, & McIntyre, 2009). Although mandatory insurance schemes only exist in a small number of countries and have low population coverage, many SSA countries are now considering this form of financing.

Before reviewing healthcare financing in SSA in the second decade of the 21st century, it is important to consider the macroeconomic context of SSA countries. While the average gross domestic product (GDP) growth rate in SSA countries in total (5%–12%) and per capita terms (3%–9%) was strong during the mid-to-late 2000s, it has declined to an average annual GDP growth rate of 1.24% and annual decline in GDP per capita of −1.45% in 2016. Poverty levels remain high; the average poverty headcount ratio in SSA countries is around 41% at the $1.90-a-day poverty line and 65% at the $3.10-a-day poverty line. The dependency ratio is relatively high in SSA at 86% of the working age population, and the majority of the population (62%) lives in rural areas (World Bank, 2017). The labor force participation rate in SSA is estimated at 69%, with 56% of employment being in the agriculture sector, 11% in industry, and 34% in the service sector (International Labor Organization, 2017). Informal employment comprises a substantial portion (about 66%) of non-agricultural employment in SSA (Vanek, Chen, Carré, Heintz, & Hussmanns, 2014).

Figure 1 indicates that as of 2015, the composition of healthcare financing sources varies considerably across different SSA countries. Domestic mandatory prepayment revenue accounts for an average of 35% of current health expenditure in SSA, but ranges from 7% to 97% across countries. Most of this is in the form of spending by government ministries or departments and funded by tax revenue. A very small share is attributed to mandatory health insurance scheme contributions, which account for an average of only 1% of current health expenditure in SSA. A far higher share, at an average of 57%, of current health expenditure is funded from domestic mandatory prepayment revenue in the rest of the world (i.e., all other countries outside of SSA). Conversely, there is a relatively heavy reliance on OOP payments in SSA countries, averaging 36% of current health expenditure and ranging from 2% to 75% across countries, compared with an average of 22% in the rest of the world. As indicated earlier, private health insurance or domestic voluntary prepayment, particularly in its more commercial forms, is very limited in all SSA countries except for a few Southern African countries, particularly South Africa and Botswana, where private insurance contributions account for 36% and 25% of current health expenditure, respectively. Private health insurance or voluntary prepayment in most other SSA countries largely refers to CBHI schemes, which contribute very little funding to overall health expenditure. The category of “other domestic private payments” refers largely to funding by large firms or of non-governmental organizations, with mission or faith-based health service providers remaining important in many SSA health systems. There is also a greater dependence on external funding in SSA, accounting for

an average of 14% of current expenditure compared to an average of <1% in the rest of the world.

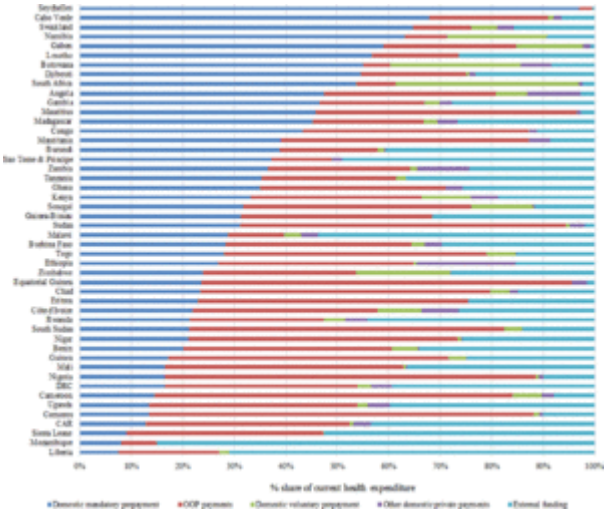

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Figure 1. Distribution of healthcare financing across sources (2015).

Source: World Health Organization Global Health Expenditure Database (http://www.who.int/health-accounts/ghed/en).

Note: All SSA countries for which 2015 data were available are included; countries are ordered according to the percentage share of financing in the form of mandatory prepayment, from lowest to highest.

The following section considers the experience of SSA countries in terms of each of these financing mechanisms in greater detail.

Experience of Alternative Healthcare Financing Mechanisms in SSA

Out-of-Pocket Payments

Out-of-pocket (OOP) expenditure, both in the form of user fees at public sector facilities and direct payments to a range of qualified as well as untrained private healthcare providers, account for a considerable proportion of current health expenditure in SSA. While nominal user fees had been charged for some time, particularly at mission facilities, the widespread introduction of user fees at public healthcare facilities in SSA only occurred in the 1980s. The main stated goal of user fees, as spelt out in a World Bank report used to support inclusion of this policy in structural adjustment programs, was that of generating revenue. Subsidiary objectives included improving service quality, efficiency through reducing “frivolous use” of health services, equity, and sustainability through increased revenues (Akin, Birdsall, & de Ferranti, 1987).

However, subsequent empirical evidence on user fees revealed that revenue generation was limited, contributing less than 5% of recurrent healthcare expenditure (Gilson, 1997; Yates, 2009). User fees were also found to be an inefficient means of generating revenue given high revenue collection and related administrative costs. Moreover, little of the collected revenue was retained or reinvested in the health sector. In some countries, such as Ethiopia, user fee revenues had to be remitted to central treasury (Nair & Tushune, 2011); in other cases, health budget allocations decreased to offset gains in user fee revenue.

Research also found a substantial decrease in use of healthcare services following the introduction of user fees, indicating a price elastic healthcare demand (Lagarde & Palmer, 2008). The most dramatic decline was recorded in Kenya, where utilization declined by over 50% when user fees were first introduced (Mwabu, Mwanzia, & Liambila, 1995). Healthcare utilization reduced particularly dramatically amongst the lowest socio-economic groups (Gilson, 1997; Lagarde & Palmer, 2011; McIntyre, Thiede, Dahlgren, & Whitehead, 2006). Some highlighted that the poor did not have frivolous demands in the first place, given the heavy burden of other direct costs of using health services such as transport costs as well as indirect costs such as loss of work time and labor productivity (Abel-Smith & Rawal, 1992). Indirect costs were estimated to be up to two–3.6 times greater than direct costs (Gilson, 1997; McIntyre et al., 2006).

In addition to user fees, informal or “under-the-table” payments (i.e., fees charged by providers at public facilities that are officially free of charge or in addition to official fees) constitute a relatively high proportion of OOP healthcare payments. A study of informal payments in 33 African countries found a significantly high concentration index for almost all countries, highlighting the disproportionately greater informal payments among the poorest. The poorest 50% of households were more likely to make informal payments at public facilities in all countries and socio-economic disadvantage by itself directly exposed patients to informal payments (Kankeu & Ventelou, 2016).

Fee-waiver and exemption systems have been found not to protect the poor due to lack of accurate means testing mechanisms. Many SSA countries have focused fee exemptions on broad demographic groups, such as pregnant women and young children, or on specific services, which results in better-off patients tending to benefit more than the poor. The poor are also reluctant to request fee-waivers due to the bureaucratic processes involved in securing exemptions and for fear of stigmatization from being labeled as indigent. The poor use various coping strategies to deal with healthcare costs such as delaying care seeking, self-medication, borrowing, reducing the consumption of food and other necessities, and sale of assets. This perpetuates the vicious cycle of poverty, particularly among the poorest (Gilson, 1997; McIntyre et al., 2006).

Although the adverse consequences of user fees have dominated empirical findings, a few studies demonstrated an increase in healthcare utilization, particularly for the poor, when the introduction of user fees in countries such as Niger and Cameroon was accompanied by an improvement in health service quality (Lagarde & Palmer, 2008). However, these

findings related to small pilot projects rather than sustained, large-scale quality improvement interventions. Ultimately, a systematic review of the impact of user fees in low- and middle-income countries (LMICs) found the evidence to be inconclusive due to methodological weaknesses of studies (Lagarde & Palmer, 2011).

The research effort that persuaded policymakers at the national, regional, and global levels of the adverse effects of OOP payments as a means of financing health services was that which examined the incidence of catastrophic healthcare expenditure and the impoverishing effects of OOP healthcare payments (Xu et al., 2003). A global analysis of catastrophic spending reported a mean incidence of catastrophic healthcare spending of 11.4%, and a head count of 119 million people in 2010 in Africa, using the 10% total household expenditure threshold (Wagstaff, Flores, Hsu, et al., 2017A). Table 1 summarizes findings from studies of this nature, conducted in the late 1990s and early 21st century, from 29 SSA countries. Heterogeneity in methodology, particularly choice of threshold for catastrophic expenditure, limits direct comparison of these studies. Nevertheless, they provide an indication of the financial protection challenges posed by OOP payments in SSA. Although catastrophic healthcare expenditure is relatively low in some countries, others report quite high incidences. For instance, using the 10% total annual household expenditure threshold, the 2017 UHC global monitoring report reveals an incidence range of less than 1% (Zambia) and 25% (Nigeria) in SSA (World Health Organization & World Bank, 2017). Most studies have typically only considered OOP payments made to healthcare providers; however, some studies also consider the contribution of transport costs to the financial burden that households face when seeking healthcare services (Barasa, Maina, & Ravishankar, 2017; Masiye, Kaonga, & Kirigia, 2016; Su, Kouyaté, & Flessa, 2006). Transport costs as a share of total OOP payments varied from 3.2% in Bukina Faso (Su et al., 2006) to 73% in Zambia (Masiye et al., 2016). Catastrophic expenditure would clearly be higher if all direct costs including transport costs are taken into account.

Table 1. Findings on Financial Risk Protection From Selected Studies in Sub-Saharan Africa

Publication	Country	Year of Data	Catastrophic Health Expenditure Threshold	Catastrophic Incidence	Impoverishment*
World Health Organization and World Bank (2017)	Angola	2008	10% of non-food expenditure	12%	2%
	Benin	2003		11%	3%
	Botswana	1993		9%	1%
	Burkina Faso	2009		20%	1%
	Burundi	2006		15%	2%
	Cameroon	2014		11%	2%
	Congo	2011		2%	1%
	Côte d’Ivoire	2008		15%	3%
	Democratic republic of Congo	2004		6%	<1%
	Djibouti	1996		1%	%

	Ethiopia	2004		1%	<1%
	Gabon	2005		6%	1%
	Ghana	2005		3%	-
	Kenya	2005		6%	1%
	Madagascar	2005		1%	<1%
	Malawi	2010		2%	1%
	Mali	2006		3%	2%
	Mauritius	1996		7%	-
	Mozambique	2008		1%	<1%
	Niger	2011		4%	2%
	Nigeria	2009		25%	4%
	Rwanda	2010		5%	1%
	South Africa	2010		1%	<1%

	Swaziland	2009		13%	1%
	Togo	2006		11%	3%
	Uganda	2002		12%	3%
	Zambia	2010		<1%	<1%
Mills et al. (2012)	South Africa	2005/06	40% of non-food expenditure	1%	-
Mchenga et al. (2017)	Malawi	2010/11	40% of non-food expenditure	1%	1%
Barasa, Maina, et al. (2017)	Kenya	2013	40% of non-food expenditure	5%	1%
Lu et al. (2017)	Rwanda	2010/11	40% of non-food expenditure	8%	-
Masiye et al. (2016)	Zambia	2014	40% of non-food expenditure	11%	-
Ataguba (2012)	Nigeria	2003/04	40% of non-food expenditure	17%	-

Brinda et al. (2014)	Tanzania	2008/09	40% of non-food expenditure	18%	-
Kwesiga, Zikusooka, and Ataguba (2015)	Uganda	2009/10	10% of total expenditure	23%	4%
Sene (2015)	Senegal	2011	20% of total expenditure	1%	-
Akazili et al. (2017)	Ghana	2005/06	20% of total expenditure	3%	2%

(*) Figures rounded to whole numbers.

(**) Proportion of population pushed into poverty annually due to healthcare costs.

Of importance is that all studies of the 29 countries found that poorer households bear the greatest burden of catastrophic health expenditures. For example, the incidence of catastrophic healthcare expenditure in Kenya was 10% among household in the poorest quintile, and 2% among households in the richest quintile (Barasa, Maina, et al., 2017). In Zambia, the incidence of catastrophic healthcare expenditure was 13% among households in the poorest quintile, and 1% among households in the richest socio-economic quintile (Masiye et al., 2016). Intra-country geographic disparities also exist, with a higher incidence reported in rural, compared to urban, regions (Barasa, Maina, et al., 2017; Mchenga, Chirwa, & Chiwaula, 2017; Sene, 2015). Table 2 summarizes the main factors found in recent studies to be significantly associated with an increased odds of catastrophic healthcare expenditure in the SSA context.

Table 2. Factors Associated with Catastrophic Healthcare Expenditure

Category	Factors
Demographic characteristics	• increased age (Barasa, Maina, et al., 2017; Sene, 2015); and • large household size (Brinda, Andrés, & Enemark, 2014; Lu, Liu, Li, & Yang, 2017)
Health status	• the presence of chronic disease (Barasa, Maina, et al., 2017; Brinda et al., 2014)
Socio-economic characteristics	• low socio-economic status (Barasa, Maina, et al., 2017; Brinda et al., 2014; Lu et al., 2017); • unemployment (Barasa, Maina, et al., 2017); • employment in the informal sector (Brinda et al., 2014); • residence in rural or marginalized geographic areas (Barasa, Maina, et al., 2017; Mchenga et al., 2017; Sene, 2015); and • the education level of the household head (Lu et al., 2017).

Some of the studies also assessed the impoverishing effects of OOP expenditures, finding that between less than 1% to 4% of the respective country’s population was pushed into poverty annually due to OOP healthcare payments (Table 1). Although the percentage values seem low, it represents literally hundreds of thousands of Africans being pushed below the poverty line because of having to pay for healthcare on an OOP basis. A global analysis of the impoverishing effect of out-of-pocket healthcare payments estimated that

14.9 million individuals were pushed into poverty in Africa in 2010 (Wagstaff, Flores, et al., 2017B). The pattern of inequity across socio-economic groups and geographic areas in terms of catastrophic payments was also evident for impoverishing effects of OOP payments (Akazili et al., 2017; Barasa, Maina, et al., 2017; Mchenga et al., 2017).

Recognition of the negative consequences of user fees and other OOP payments, particularly through the analysis of catastrophic and impoverishing OOP healthcare expenditure, shifted the focus of the healthcare financing debate to support for the removal of user fees, and a growing emphasis on prepayment mechanisms. About 17 African countries have removed user fees from some or all public sector health services since 2001 (Hercot, Meessen, Ridde, & Gilson, 2011).

This has contributed to a decline in OOP expenditure as a percentage of current health expenditure in most SSA countries over the last decade (see Figure 2). The share of OOP expenditure of current health expenditure reduced by more than 40% in seven countries and by more than 20% in a further 11 countries. However, Ethiopia, Malawi, Eritrea, Equatorial Guinea, and Namibia experienced a more than 20% rise in OOP expenditure as a percentage of current health expenditure, although in Malawi and Namibia this was from a low base.

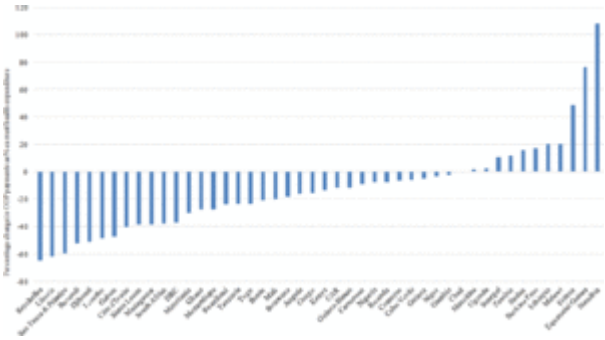

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Figure 2. Percentage change in out-of-pocket payments as a percentage of current health expenditure for sub-Saharan African countries between 2005 and 2015.

Source: World Health Organization Global Health Expenditure Database (http://www.who.int/health-accounts/ghed/en).

Healthcare utilization, mainly of curative care, increased following user fee removal. For example, there was a 30%–50% increase in utilization of curative services in Kenya, Uganda, and South Africa following user fee abolition. However, the effect on preventive care was inconclusive. Moreover, the increase in utilization was a short-term phenomenon, potentially linked to addressing previously unmet need, and utilization has stabilized over the long term (Chuma, Musimbi, Okungu, Goodman, & Molyneux, 2009; Lagarde & Palmer, 2011; Masiye, Chitah, & McIntyre, 2010). User fee removal also had the effect of shifting utilization from informal to formal healthcare providers (Powell-Jackson, Hanson, Whitty, & Ansah, 2014).

However, there have also been negative consequences of user fee removal; in some cases, quality of care has been compromised, especially through increasingly frequent drug stock-outs. Drug stock-outs coupled with increasing workload due to rising utilization

rates, in the context of the loss of staff allowances in some countries which were previously covered from user fee revenue, led to deteriorating staff morale (Masiye et al., 2010; Orem, Mugisha, Kirunga, Marq, & Criel, 2011). There is also evidence that overall OOP payments increased in countries such as Uganda following user fee removal, due to an increase in private healthcare use, including the purchase of drugs from private providers in response to declining quality in public facilities (Twikirize & O'Brien, 2012).

While user fee abolition is seen as an important policy decision to address inequities in access to health services and in financial protection, it was frequently introduced in a top-down way without adequate planning or communication with front-line providers and without making available additional resources to deal with utilization increases. The resulting implementation challenges led to the reintroduction of user fees or the growth of informal payments in some countries such as Ghana, Senegal, Kenya, and Uganda. There is no strong evidence that the poorest have particularly benefited, and there is a lack of evidence on the effect of user fee abolition on the overall health system, such as translating into a relative increase in use of private sector health services if the quality of public sector services was seen as declining with drug stock-outs and demotivated staff (Chuma et al., 2009; Lagarde & Palmer, 2011; Ridde & Morestin, 2011; Ridde, Robert, & Meessen, 2012).

There is now consensus among global health actors that user fees and other OOP payments are not an appropriate means of financing healthcare in LMICs. This position has been strengthened through research published in 2015, which highlighted an adverse impact on health status of funding health services through OOP payments. Using a global dataset, the research indicated that a 10-percentage-point increase in the share of total health expenditure funded through OOP payments increased adult deaths by more than 34 per 1,000 (Moreno-Serra & Smith, 2015).

While there is agreement on the need to move away from OOP payments for funding health services, multilateral organizations highlight the importance of increasing funding through other mechanisms before the outright removal of user fees (Robert & Ridde, 2013). The focus of current debates is on which prepayment healthcare financing mechanisms are most appropriate to reduce the reliance on user fee and other OOP payments (Yates, 2009).

Private Voluntary Health Insurance

There are two broad categories of private voluntary health insurance in SSA: employment-based health insurance and community-based health insurance (CBHI). As indicated previously, there is very limited employment-based private health insurance in SSA, except in Botswana and South Africa, where private health insurance accounts for 33% and 47% of current health expenditure (when scheme contributions and government

subsidies are taken into account), and to a lesser extent Namibia and Zimbabwe. Hence the focus here is on CBHI which is more widespread in SSA.

Community-Based Health Insurance

CBHI schemes (see Table 3) were initiated with the explicit objective of alleviating the barriers to healthcare access and potential for catastrophic or impoverishing expenditure posed by user fees. Non-governmental organizations working in rural communities, or a health facility such as a mission hospital, established small risk-sharing schemes to assist local communities to access health services when needed (Ndiaye, Soors, & Criel, 2007). There are now literally hundreds of these schemes in a wide range of SSA countries.

CBHI schemes in SSA have been the subject of extensive research over the past decade or more. A systematic review of the literature showed strong evidence of financial risk protection against healthcare costs by CBHI, with a significant reduction in OOP payments for the insured (Ekman, 2004), and reduced the incidence of household borrowing, depletion of savings, and sale of assets to pay for healthcare (Dekker & Wilms, 2010; Habib, Perveen, & Khuwaja, 2016). Other positive effects of CBHI reported in the literature include improvements in resource mobilization, quality of care, social inclusion, and community empowerment, although empirical evidence on these effects is weak (Spaan et al., 2012).

Table 3. The Development and Growth of Community-Based Health Insurance in SSA

Geographic origins and spread	Community-based health insurance (CBHI) schemes were first initiated in West Africa in the 1990s, particularly in Francophone countries such as Senegal, Benin, and Burkina Faso (where they are called *mutuelles*), and spread to Central and Eastern Africa over time.
Target population groups	CBHIs initially focused on providing cover to subsistence farmers and others in rural areas with each scheme serving a village or a few villages, but expanded to also focus on informal sector workers in urban areas in some countries, often through informal worker associations. Subsistence farmers and informal workers account for most of the working population in SSA and are groups that cannot easily be reached through formal social security systems. There is considerable diversity in CBHI schemes in terms of population coverage across and within countries.
Service coverage	Often they cover a limited range of primary healthcare services, including essential drugs; sustainable coverage of high-cost healthcare services such as hospitalization and chronic medicines has not been possible (Ndiaye et al., 2007).

Initiating organizations	In West Africa, CBHI schemes were primarily initiated by non-governmental organizations while healthcare providers and governments played a prominent role in initiation and management of CBHI schemes in Central and Eastern Africa (Ndiaye et al., 2007). Interest in CBHI has increased over time with an increase in the number and scope of actors, including national and local governments, civil society groups, and international donor organizations. For instance, such schemes were initiated by non-governmental organizations in the Democratic Republic of Congo and by not-for-profit (mission) healthcare providers in Senegal and Ghana, while the development of CBHI in Tanzania was supported by the World Bank, and the German and American bilateral cooperation agencies (GTZ and USAID; Basaza, Pariyo, & Criel, 2009; Ndiaye et al., 2007). Many CBHI schemes in SSA are heavily subsidized from external funds.

A consistent finding, with few exceptions, is very low levels of population coverage, often less than 1% and seldom greater than 10% of the target population, and small risk pools with membership of less than 500 in more than half of CBHI schemes (De Allegri, Sauerborn, Kouyaté, & Flessa, 2009; Soors, Devadasan, Durairaj, & Criel, 2010). Membership levels also fluctuate over time and retention of members is a challenge; for example, almost 60% of members of the Samburu CBHI in Kenya defaulted on payment of premiums, leading to a sharp decline in membership (Kamau & Njiru, 2014). In addition, membership, and hence financial risk protection, does not extend to the poorest (Ekman, 2004; Jutting, 2004). A study in Senegal found the probability of joining CBHI schemes for the poorest to be 11% less than average, while it was 16% higher than average for the richest (Jutting, 2004).

Lack of funds was often cited as the main reason for not joining or renewing membership of CBHI schemes (Basaza, Criel, & Van der Stuyft, 2008; Criel & Waelkens, 2003). Geographic inaccessibility of providers and poor quality of services also contributed to low or declining membership (Criel & Waelkens, 2003; Robyn et al., 2013). Other factors included limited understanding of health insurance, unattractive benefit packages, lack of trust in local financial schemes, and inadequate involvement of communities in management of the schemes (Basaza et al., 2008; Noubiap, Joko, Obama, & Bigna, 2013).

CBHIs have also been found to mobilize limited resources and have high transaction costs. On average, contributions covered 25% of the cost of providing the services used by CBHI members (Ekman, 2004). Overhead costs account for 10%–30% of generated revenue both for small and large schemes. Moreover, there are high start-up costs which make the schemes dependent on external funding (De Allegri et al., 2009). CBHI schemes also face other operational challenges, such as weak managerial capacity, inadequate risk

management practices, and lack of legislation and regulatory frameworks (Basaza et al., 2008; Ndiaye et al., 2007).

As a form of voluntary health insurance, CBHIs face market failure problems such as adverse selection and moral hazard. Some schemes have attempted to address adverse selection, such as requiring entire families or sometimes communities to enroll, limiting enrollment to certain times of the year (e.g., after the harvest), and imposing waiting periods. There are few mechanisms in place in CBHIs to address moral hazard, and most CBHI schemes rely on fee-for-service provider payments, which has contributed to cost escalation (De Allegri et al., 2009).

Overall, although there is evidence that CBHIs have substantially reduced OOP payments for members, population coverage remains low and unstable and the schemes do not provide protection for the poorest and face sustainability challenges due to small risk pools, low revenue, high administration costs, and reliance on external funding. While CBHIs started as localized initiatives to assist community members to overcome the barriers created by user fees to access basic health services when needed, they are now increasingly being seen as a mechanism for moving toward universal contributory health insurance within the SSA context of very small formal employment sectors.

Mandatory Contributory Health Insurance

A mandatory health insurance scheme is one where certain groups or the entire population are required by law to contribute to and become members (McIntyre, 2007). Table 4 provides a description of some of the most well-known mandatory health insurance schemes in SSA. In the context of the global emphasis on UHC, there is growing interest in establishing mandatory health insurance schemes in SSA countries (Josephson, 2017; Lagomarsino, Garabrant, Adyas, Muga, & Otoo, 2012; Tetteh, 2012). Ghana, Kenya, Nigeria, Rwanda, and Tanzania have established mandatory health insurance schemes, while South Africa, Swaziland, Lesotho, Sierra Leone, Liberia, Zambia, Uganda, Burkina Faso, and Zimbabwe are considering it (Josephson, 2017; Tetteh, 2012).

Table 4. Examples of Mandatory Health Insurance Schemes in SSA Countries

	Kenya	Tanzania	Ghana	Rwanda
Scheme(s)	• The Hospital Insurance Fund (NHIF) was established in 1966 as a department under the Ministry of Health (IFC, 2011). • In 1998, the NHIF was transformed into an autonomous state corporation.	• The National Health Insurance Fund (NHIF) was established in 1999 as an autonomous state corporation. • In 2009, the NHIF mandate was expanded to include the management of the community health fund (CHF), a voluntary CBHI scheme established in each health district in 2001 to provide health insurance coverage to the rural population and informal sector	• The National Health Insurance Scheme (NHIS) was established in 2003.	• Membership of a health insurance scheme is mandatory by law in Rwanda. The country has four main health insurance schemes: **1.** Community-based health insurance (CBHI), established in 1999 **2.** Rwandaise d'Assurance Maladie (RAMA), established in 2001

		(National Health Insurance Fund, 2017). • The Social Health Insurance Benefit (SHIB) scheme was established in 2005 as an autonomous entity within Tanzania's pension fund, the National Social Security Fund (NSSF; Kuwawenaruwa & Borghi, 2012).		**3.** Military Medical Insurance (MMI), established in 2005 **4.** Private insurance
Population groups covered	• Initially, the NHIF provided coverage only to formal sector workers.	• The NHIF was established to provide mandatory health insurance coverage to government employees.	• The NHIS provides mandatory health insurance to all Ghanaians, irrespective of their labor category (formal, informal, unemployed;	

	• In 1998, the NHIF's mandate expanded to provide health insurance coverage to informal sector workers. According to the NHIF Act of 1998, membership of the NHIF is mandatory for both formal and informal sector workers. In practice, however, it has proved problematic to enforce mandatory membership for the informal sector, making their membership effectively voluntary (Barasa, Forrester, Mwaura, Rogo, & Andrawes, 2017).	• The NHIF's mandate was later expanded to provide health insurance coverage to formal sector workers in the private sector, and members of the informal sector that joined the scheme on a voluntary basis (National Health Insurance Fund, 2017). • The SHIB scheme is mandatory for private and parastatal employees.	Agyepong et al., 2016).	• The majority of the insured population (94%) is covered by CBHI, with the other schemes covering the remaining 6% of the insured population (National Institute of Statistics of Rwanda (NISR) [Rwanda], Ministry of Health (MOH) [Rwanda], & ICF International, 2015). • The CBHI scheme provides health insurance coverage to populations working in the rural and informal sectors of the economy, which includes the majority of the poor in Rwanda (Ministry of Health, 2010A).

date: 01 June 2018

	• In 2013, the NHIF introduced a health insurance subsidy for the poor (HISP) scheme to provide insurance coverage to poor households selected by proxy-means testing.			• RAMA provides health insurance coverage to formal sector workers in the public sector. • MMI provides health insurance coverage to members of the military (Ministry of Health, 2010B). • Formal sector workers in the private sector, who had the option of belonging to a private health insurance, were later given the option of belonging to RAMA.
Services covered	• The benefit package was initially	• The NHIF benefit package includes both inpatient and	• The NHIS covers inpatient and outpatient services.	

	limited to inpatient care. • In 2010, the NHIF introduced a civil servants scheme with a benefit package that includes inpatient and outpatient services, treatment abroad, and funeral expenses in the event of death (last expense). • In 2015 the NHIF expanded and harmonized its benefit package for the general scheme (non-civil servant formal sector employees and informal sector) and HISP to include comprehensive inpatient and	outpatient healthcare services. • The SHIB also covers inpatient and outpatient services.		• All schemes cover both inpatient and outpatient services, but a more comprehensive package is available for RAMA and MMI members.

	outpatient entitlements.			
Contribution structure and other funding	• Income-rated premiums are deducted from formal sector employee salaries and remitted by the employer directly to the NHIF. • Informal sector workers are required to make a monthly flat rate premium contribution to the NHIF (IFC, 2011). • Tax funds subsidize contributions for HISP members.	• NHIF premiums for formal sector employees are set at 6% of their salary. The employer contributes 3% and the employee pays the remaining 3%. Informal sector workers pay a flat fee (Center for Health Markets Innovations, 2017). • SHIB members contribute 10% of their gross salary to the NSSF that is matched by their employer, making a total of 20% of their salary	• The NHIS is funded from premium contributions from its members, a national health insurance levy (2.5% of Value Added Tax (VAT), and other general revenue allocations by the government (Witter & Garshong, 2009). • A majority of formal workers make premium contributions in the form of a 2.5% monthly payroll deduction to the Social Security and National Insurance	

		(Kuwawenaruwa & Borghi, 2012).	Trust (SSNIT) pension fund (Agyepong & Adjei, 2008). • Individuals who do not belong to the SSNIT (informal sector workers, and a few formal sector workers), are required to make annual premium contributions to their District Mutual Health Insurance Schemes (DMHIS) before they are covered by the NHIS (Agyepong et al., 2016).	• The CBHI is financed by a combination of member contributions (65%), government funding from general revenues (14%), and support from development partners, particularly the Global Fund (10%) (Ministry of Health, 2013; USAID, 2016). The CBHI uses a community participatory wealth ranking process called "*Ubedehe*" to categorize members into three groups by social economic status (Ministry of Health, 2010B). Members in the third socio-economic category pay a

			• Officially, premium contributions are income rated. However, because of the difficulty in assessing incomes of informal sector workers, most DMHIS use a flat rate premium (Abiiro & McIntyre, 2012). • The elderly, children, pregnant women, and the poor are exempt from making premium contributions.	higher premium than members in the second socio-economic category, while members in the first (poorest) socio-economic category are exempt from premium payments (Ministry of Health, 2010B). • Members of RAMA pay a monthly premium of 7.5% of their gross salary, which is matched by a 7.5% contribution by their employer (a total of 15% of members' monthly gross salary; Ministry of Health, 2010B).

			• SSNIT and non-SSNIT premiums contribute about 30% of total NHIS revenues, while the 2.5% NHI levy contributes the remaining 70% (Abiiro & McIntyre, 2012; Witter & Garshong, 2009). The NHIS is hence predominantly tax financed, even though it has a contributory element.	• Members of MMI pay a monthly premium of 17.5% of their gross salary, which is matched by a 5% contribution by their employer (a total of 22.5% of members' monthly gross salary; Ministry of Health, 2010B).

The approach adopted to introduce mandatory health insurance schemes in SSA is an important policy and research question (Josephson, 2017; Lagomarsino et al., 2012). Frequently, an incremental approach is adopted where membership is initially restricted to formal sector workers, with the intention of subsequently attempting to expand coverage to the informal sector. Examples of SSA countries that have embarked on this incremental approach include Kenya's NHIF (IFC, 2011), Tanzania's NHIF (National Health Insurance Fund, 2017), and Nigeria's NHIS. An alternative approach is to aim for universal coverage from the outset, with health insurance schemes targeting both formal and informal sector workers and attempting to enroll the entire population, such as in Ghana, Rwanda, and Mali (Lagomarsino et al., 2012).

Population coverage with mandatory health insurance schemes in SSA countries remains low (see Table 5). This is particularly the case where the mandatory schemes focus only on formal sector employees, given that a high proportion of the working population in SSA countries are in the informal sector (Lagomarsino et al., 2012). Only 3 countries, Gabon (40.5%), Ghana (58%), and Rwanda (74%), have achieved a population coverage level of above 20% (Barasa et al., 2018). Higher population coverage levels in countries such as Ghana and Rwanda has been achieved through making insurance scheme membership mandatory for the entire population and having considerable previous experience of CBHI schemes covering those in the informal sector (see Table 4 for more information). Further, both countries fully subsidize mandatory insurance scheme membership for the poor, which accounts for a large proportion of the population, through tax revenue and donor funds. Nevertheless, it remains very challenging to achieve, and even more so to sustain, high population coverage levels in a context of high informality and poverty levels (Lagomarsino et al., 2012). For example, despite achieving a rapid increase in enrollment levels in its early years of implementation, enrollment in Ghana's NHIS has now stagnated at about 40% of the population (Agyepong et al., 2016). Similarly, in Rwanda, where enrollment in the mandatory CBHI scheme increased from 7% in 2003 to 91% in 2011, enrollment had decreased to 75% by 2015 (USAID, 2016).

Table 5. Indicators for Mandatory Health Insurance in Selected SSA Countries

County	Population Coverage (%)	Quintile 5/ Quintile 1 ratio‡	Mandatory Health Insurance Contributions as Percentage of Current Health Expenditure (2015)
Ethiopia	0.02%	-	-
Zambia	0.03%	9.00	-

Democratic Republic of Congo	0.03%	-	-
Nigeria	0.04%	-	1.1%
Madagascar	0.08%	-	-
Burkina Faso	0.12%	-	0.1%
Comoros	0.19%	-	2.9%
Cote d’Ivoire	0.20%	-	0.5%
Congo	0.25%	25.00	-
Zimbabwe	0.26%	-	-
Sao Tome and Principe	0.26%	1.88	-
Niger	0.27%	-	1.1%
Sierra Leone	0.29%	-	-
Cameroon	0.41%	-	-
Benin	0.51%	29.60	1.7%
Liberia	0.54%	23.00	-
Senegal	0.58%	36.75	2.9%
Mali	0.61%	54.00	3.2%
Tanzania	1.56%	4.02	7.1%
Togo	3.53%	-	7.3%
Namibia	4.73%	17.87	-
Burundi	5.23%	1.01	4.4%

Kenya	15.80%	12.27	4.3%
Gabon	40.46%	0.96	14.2%
Ghana	57.90%	1.09	2.1%
Rwanda	74.00%		1.9%
South Africa	-	-	-
Mozambique	-	-	0.3%
Gambia	-	-	-
Lesotho	-	-	-
Swaziland	-	-	-
Uganda	-	-	-
Unweighted Mean	**7.72%**	**16.65**	**3.4%**

Sources: Barasa et al. (2018) for population coverage and Q5/Q1 ratio; WHO Global health expenditure database for last column.

Notes: ‡ Quintiles 1 and 5 represent the poorest and the richest quintiles, respectively.

The biggest population coverage challenge is that although legislation may exist making insurance scheme membership mandatory for all, it is difficult to enforce this for subsistence farmers and others in the informal sector and, therefore, membership is effectively voluntary for this group. Therefore, the same constraints to population coverage as faced by voluntary insurance schemes are faced by mandatory schemes in covering the informal sector. Other factors that have been found to contribute to low population coverage in SSA include: low public knowledge and awareness of the insurance schemes; long and complex registration requirements and processes; unaffordable premiums; and health provider factors such as availability and accessibility of healthcare facilities, and the quality of care offered in these facilities (Agyepong et al., 2016; Barasa, Forrester, et al., 2017; Govender et al., 2013; Ibiwoye & Adeleke, 2008; Jehu-Appiah et al., 2011; Mathauer, Doetinchem, Kirigia, & Carrin, 2011).

Revenue generation levels are low; on average, mandatory health insurance contributions (i.e., excluding transfers or payments by government or external funders on behalf of specific groups, such as the poor) accounted for only 3.4% of current health expenditure

in the 16 SSA countries with available data for 2015 (see Table 5). Only one of these countries (Gabon) had contributions by employees, employers or the self-employed of higher than 10% (World Health Organization, 2017). This raises questions about the efficiency of mandatory health insurance contributory mechanisms in mobilizing sufficient resources for UHC in SSA countries. While some schemes, such as Kenya's NHIF, and Tanzania's NHIF are predominantly financed by premium contributions, others, such as Ghana's NHIS, Nigeria's NHIS, Rwanda's CBHI scheme, and Mali's *mutuelles* are funded by a combination of tax revenue and premium contributions (Lagomarsino et al., 2012). External funding also plays a key role in some countries such as Rwanda.

The equity of mandatory health insurance schemes in SSA countries is also a key concern. There is overwhelming evidence that enrollment in mandatory health insurance schemes in SSA favors the rich. For instance, coverage in the richest socio-economic quintile of the population is on average 17 times that of the lowest quintile (Table 5). Specific assessments in Ghana (Jehu-Appiah et al., 2011) and Kenya (Kazungu & Barasa, 2017) have also revealed inequities in mandatory health insurance scheme enrollment.

Few studies have examined the extent to which mandatory health insurance provides financial protection and improves access to and use of health services in SSA countries. However, studies in Ghana (Kusi, Hansen, Asante, & Enemark, 2015; Nguyen, Rajkotia, & Wang, 2011) and Rwanda (Lu et al., 2012) did find evidence of protection against the financial burden of healthcare. Assessments in Kenya, Ghana, Rwanda, and Nigeria have shown that, on average, individuals enrolled in a mandatory health insurance scheme are more likely to utilize healthcare services when needed, compared to individuals without health insurance (Blanchet, Fink, & Osei-Akoto, 2012; Ibiwoye & Adeleke, 2008; Lu et al., 2012; Ministry of Health, 2014). The effects of mandatory health insurance on insured individuals can however be diluted at the population level because of low enrollment rates. For instance in Kenya, membership of a health insurance scheme was found to have no significant association with the incidence of catastrophic healthcare expenditure (Barasa, Maina, et al., 2017).

External and Domestic Government Funding

External Funding

As indicated previously, external funding for health plays a far more significant role in the SSA region than in other regions of the world. Figure 3 indicates that there is considerable variation in the extent to which different SSA countries rely on external funding for health services; the share of external funding for health in current health spending ranges from <1% (in the Seychelles and Gabon) to 85% (in Mozambique). Even where external funding is not the major source of current healthcare financing in an individual country, such funding may dominate specific healthcare programs. For example, about 85% of HIV/AIDS activities in Kenya in 2005/2006 were funded by donors

(Munge & Briggs, 2014). Figure 3 also indicates that, on average, richer countries (in terms of real per capita GDP) rely less on external funding for health compared to poorer countries.

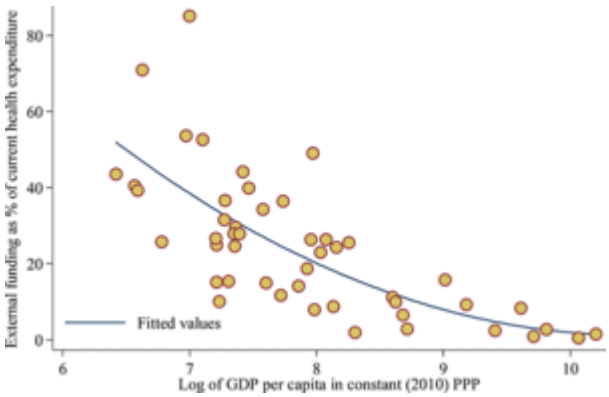

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Figure 3. Relationship between the reliance on external funding for health and real GDP per capita, sub-Saharan Africa, 2015.

Source: http://apps.who.int/nha/database/Select/Indicators/en.

External funds for healthcare in SSA, as in many developing countries, initially focused mainly on project assistance for vertical (or stand-alone) programs that target specific healthcare interventions, such as family planning, or diseases such as HIV/AIDS, malaria, and tuberculosis. The vertical programming approach has a short-term outlook aimed at remedying a specific health problem (e.g., malaria) using specific measures (such as through improved bed-net coverage; Strasser, Kam, & Regalado, 2016).

However, the vertical program approach led to a proliferation of projects, inefficiencies due to parallel management and reporting systems, and non-alignment of external support with local priorities and sustainability issues (Strasser et al., 2016; World Health Organization, 2005A). Having to engage with about 200 donor agencies, as was the case in Ghana in 1992, provides an indication of how challenging the multiplicity of externally funded programs can be (Buse & Walt, 1997).

In the 1990s, “horizontal” programming approaches began to be adopted for external financial flows to SSA countries, involving a more comprehensive and integrated systems approach to improving population health (Strasser et al., 2016). Non-project assistance approaches are considered to make aid more effective, and may take the form of budget support, which directs external assistance into the overall national budget, or Sector Wide Approaches (SWAps), whereby external funds support a single health sector policy and expenditure program under national government leadership. These approaches have been cemented through the Paris Declaration on Aid Effectiveness (2005), the Kampala Declaration on fair and sustainable health financing (2005), and the Accra Agenda for Action (2008; OECD, 2009; World Health Organization, 2005A).

Although there has been a declining emphasis on vertical programs, it has been challenging to integrate existing vertical programs into the overall health system. The failure of malaria control programs in SSA, for instance, has been blamed on the use of vertical programs because inter alia, there is little or no focus on providing

comprehensive health services (Strasser et al., 2016). Horizontal programming approaches on the other hand are integrated and have a long-term outlook. There is debate as to the most appropriate form or mix of vertical and horizontal programming approaches, which is dependent on the specific country context and needs as well as other considerations (Strasser et al., 2016). There is also little research that documents the experiences of SSA countries to better understand the impact of different external funding modalities on health.

Reliance on external funding in SSA has increased significantly over the past one-and-a-half decades (Figure 4). Such reliance is understandable as some SSA countries lack adequate domestic funds to meet even basic health service needs of their population. However, there are concerns about whether increased donor funding is effective in improving health services in the recipient countries. This is related to the potential "fungibility" of donor funding, whereby a recipient government offsets increased donor funding for the health sector by reducing its allocations from domestic tax revenue to the health sector, thereby making donor funding a substitute for, instead of a supplement to, domestic funding of health services. There are a growing number of studies demonstrating that external aid is displacing domestic government funding of healthcare, particularly in low-income countries (Dieleman & Hanlon, 2014; Farag, Nandakumar, Wallack, Gaumer, & Hodgkin, 2009). Although not restricted to SSA countries, a recent study has estimated that a $1 year-on-year increase in development assistance for health channeled to governments leads to a $0.62 decrease in domestic government spending on healthcare (Dieleman & Hanlon, 2014).

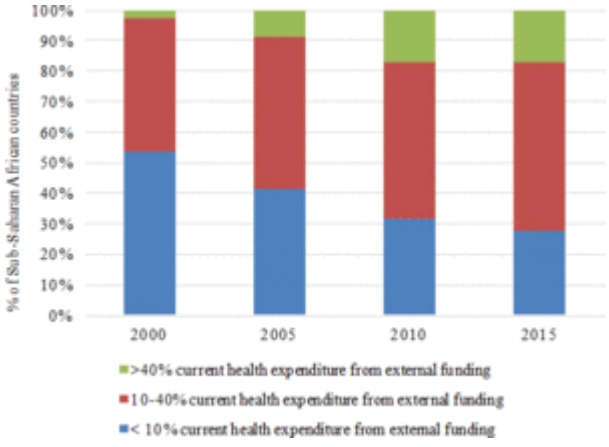

Figure 4. Reliance on external resources for health in SSA, 2000–2015.

Source: http://apps.who.int/nha/database/Select/Indicators/en.

What is particularly concerning from recent research findings is that a year-on-year decrease in aid does not result in a change in domestic government spending on health that is statistically significant from zero (Dieleman & Hanlon, 2014). This has serious implications for the sustainability of health systems in SSA countries which rely heavily on donor funds, given that such funding can be unreliable and can be withdrawn suddenly for political reasons. Some SSA countries face potential decreases in external funding as they have moved from being classified as low-income to middle-income countries and, thus, seen as less of a priority for external support. Because the traditional theoretical assumption of a trickle-down effect of economic growth (Aghion & Bolton, 1997) seldom materializes, there may be little change in income inequality levels and pockets of poverty

remain in these countries. Declining donor funding, particularly if not replaced by domestic government funding, can pose equity challenges and exacerbate financial protection and service access challenges for the poor.

Domestic Government Funding

There has been surprisingly little research on funding of health services from tax and other sources of domestic government revenue in SSA, despite the importance of this source to all domestic funding efforts. For example, even if a country attempts to move towards UHC by setting up mandatory health insurance and/or CBHI schemes, increased government funding is required to partially or fully subsidize the contributions of informal sector workers, the unemployed, and the poor if all citizens are to have financial protection and access to quality health services (Lagomarsino et al., 2012).

There has been some policy focus on increasing government spending on health services, particularly through what is termed “the Abuja target,” which is a commitment made by African heads of state to devoting 15% of government funds to the health sector (OAU, 2001). Although committed to by heads of state, and strongly supported by Ministries of Health, the Abuja target has been opposed by some Ministries of Finance (Govender, McIntyre, & Loewenson, 2008). The reality is that there has been little increase in domestic government funding of health services in the last decade and very few SSA countries have made much progress to achieving the Abuja target (Sambo, Kirigia, & Orem, 2013). Figure 5 indicates that only three SSA countries have domestic government health expenditure levels that meet the Abuja target; less than a quarter of SSA countries have domestic government health expenditure of 10% or more of general government expenditure.

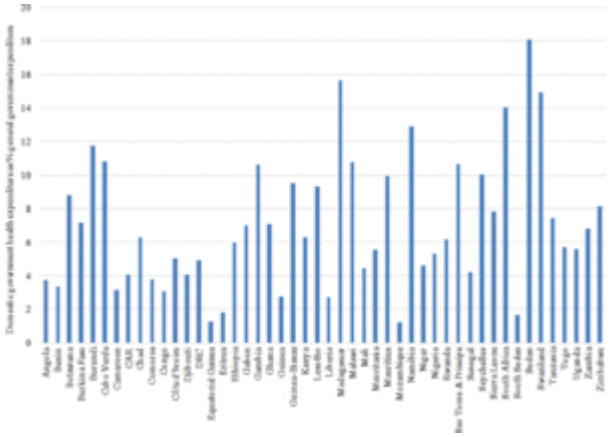

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Figure 5. Domestic government expenditure on health in SSA relative to Abuja target, 2015

Source: http://apps.who.int/nha/database/Select/Indicators/en.

There are several reasons for the apparent failure of the Abuja target process. Ministries of Finance generally oppose any efforts to limit their decision-making autonomy on the allocation of their revenue between sectors (Jones & Duncan, 1995). In addition, many stakeholders are justifiably concerned about the potential impact of the Abuja target on government funding for other social sectors, given that the target is expressed as a percentage of the government budget (McIntyre, Meheus, & Røttingen, 2017; Witter, Jones, & Ensor, 2014).

There has been a recent shift to not only focusing on increasing government funding for health services, but rather emphasizing the obligation of national governments to raise funds domestically to meet commitments they have made such as through the International Covenant on Economic, Social[,] and Cultural Rights (Waris & Latif, 2015). This broader focus has been strengthened by the adoption of the Sustainable Development Goals (SDGs) and the associated Addis Ababa Agenda on Financing for Development, which stressed the need for "significant additional domestic public resources" in order to achieve the SDGs (UN, 2015, paragraph 22). This has been accompanied by a move away from the Abuja target, which is expressed as a percentage of the government budget, to a target of government health spending as a percentage of GDP, recommended to be at least 5% of GDP to move towards UHC (McIntyre, Meheus, & Røttingen, 2017).

However, meeting these commitments, particularly if accompanied by reducing the reliance on external funds, will require increases in overall government revenue. General government revenue is currently an average of 17.3% of GDP in SSA while government expenditure is 20.6% of GDP, which are the lowest of any world region (IMF, 2017). There has been a growing focus in policy discussions on fiscal space for increased funding of health and other social services, but with limited primary research on this issue. One of the few research projects on this issue explored how South Africa, Kenya, and Lagos State in Nigeria managed to increase tax revenue substantially without increasing tax rates, but rather through improving tax collection (RESYST, 2015). Key factors that contributed to tax revenue increases included: granting administrative autonomy to tax collection agencies, enabling them to recruit skilled staff and improve operational efficiency; promoting good governance and a zero tolerance for corruption within the agency; investing in computerization and simplifying the tax filing system; and promoting tax compliance through offering amnesty on unpaid taxes if defaulters voluntarily registered, and naming and shaming those who continued to default (RESYST, 2015).

In relation to possibly increasing tax rates or introducing new taxes, again there has been growing policy discussion but limited empirical research from a health economics perspective. There has been a particular focus on certain consumption taxes that could be earmarked for the health sector, including taxes on products that are harmful to health such as tobacco, alcohol, and sugar, and others recommended by the Taskforce on Innovative International Financing for Health Systems (2009), such as taxes on financial transactions. However, there is limited recognition that earmarking certain tax revenue to the health sector may be offset through reduced allocations from general government revenue and so may not necessarily translate into increased government funding (Cashin, Sparkes, & Bloom, 2017).

While recent research has demonstrated that expanding fiscal space is feasible (RESYST, 2015), research has also shown that Ministries of Health in SSA have been relatively unsuccessful in securing a share of increased tax revenue for the health sector (Govender et al., 2008; Musango, Orem, Elovainio, & Kirigia, 2012; RESYST, 2015). Although limited research has been undertaken on this issue, some of the reasons identified for this

pattern include the health sector being perceived as inefficient and that improved health outcomes could be achieved with the public funds already available in the sector, as well as weak health submissions during inter-sectoral budget competition. In particular, Ministries of Finance expect the Ministry of Health to put forward evidence-based plans for what resources are needed, how resources would be used, and what outputs and outcomes would be produced with these resources (Musango et al., 2012).

Given the importance of government revenue to increasing all forms of domestic financing necessary to move towards UHC, there is considerable scope for more research in the SSA context. Such research should not only consider the revenue generating potential and incidence of different taxes, but also on providing evidence that will strengthen Ministries of Health submissions to inter-sectoral budget allocation negotiations.

Evidence on Equity of Alternative Healthcare Financing Mechanisms

In considering these alternative healthcare financing mechanisms in SSA in the context of efforts to move towards UHC, it is important to understand the relative progressivity of alternative financing mechanisms. Although empirical evidence is only available for a few SSA countries (Table 6), the findings for SSA are comparable to broader international healthcare financing equity findings.

Table 6. Kakwani Indices of Different Healthcare Financing Mechanisms in Selected Sub-Saharan African Countries

Publication	Country (Year)	Direct Taxes	Indirect Taxes	General Taxes	Mandatory Insurance	Total Public	Private Insurance	Direct Payments	Total Private	Total Payments
Mills et al. (2012)	Ghana (2005/06)	0.20	0.06	0.10	0.26	0.14	−0.31	−0.07	−0.07	0.07
Mills et al. (2012)	Tanzania (2005/06)	0.48	0.07	0.18	0.42	0.18	−0.49	−0.08	−0.08	0.05
Kwesiga, Ataguba, Abewe, Kizza, and Zikusooka (2015)	Uganda (2009/10)	0.02	0.03	0.05	-	0.05	-	0.05	0.05	0.09
Mills et al. (2012); Ataguba	South Africa (2005/06)	0.04	−0.02	0.01	-	0.01	0.14	−0.04	0.06	0.07

and McIntyre (2012)										
Ataguba and McIntyre (2017)	South Africa (2010/11)	0.22	−0.10	0.08	-	0.08	0.15	−0.03	0.11	0.10
Munge and Briggs (2014)	Kenya (2007)	0.21	−0.05	-	−0.09	-	0.25	−0.31	-	−0.10
World Bank (2012A)	Zambia (2006)	-	-	0.15	0.21[A]	-	0.17	0.01	-	0.09

Note: A positive Kakwani index means that the healthcare financing mechanism is progressive (i.e., richer households pay more as a proportion of their income in financing health services than poorer households).

A negative Kakwani index signifies regressivity such that poorer households pay more as a proportion of their income than richer households to finance health services.

[a] Contributions made by private employers.

General taxes are a progressive financing mechanism in all countries and a recent study reports that general taxes in Zambia also redistribute income in favor of the poor (Mulenga & Ataguba, 2017). Direct taxes make the major contribution to general tax progressivity in SSA. In line with international experience, indirect taxes tend to be regressive, but are marginally progressive in the case of Ghana, Uganda, and Tanzania.

Direct out-of-pocket spending is regressive in the SSA countries for which there is evidence, except for Uganda and Zambia. OOP payments were marginally progressive in Nigeria, which was found to reflect high levels of unmet healthcare need among the poor (Ichoku, Fonta, & Leibbrandt, 2011). In countries where OOP payments are progressive, it generally signifies the inability of the poor to pay for and use health services. While such progressivity could indicate effective targeting of exemptions, the literature overwhelmingly notes the ineffectiveness of exemption mechanisms in protecting the poor (Gilson, 1997).

The incidence of private health insurance is also mixed. In countries where the rich have greater access to such cover, it has a progressive incidence while in countries where it is predominantly purchased by the poor, for example variants of CBHI, it is regressive.

Overall, domestic healthcare financing in SSA countries is progressive, except for Kenya, where the incidence of total healthcare payments is regressive. In each of these countries, there is usually a dominant mechanism that accounts for the progressive or regressive nature of total healthcare payments. In Kenya, for instance, direct out-of-pocket spending contributes substantially to the regressive incidence of total healthcare payments. In South Africa, private health insurance which accounts for nearly half of all healthcare expenditure although it covers less than 17% of the population, mainly the rich, contributes substantially to the progressive incidence of total healthcare payments. In Ghana, Tanzania, and Zambia, general taxes have the dominant influence on the progressive incidence of total healthcare financing.

Access to Quality Health Services: Experience of SSA Countries

The section on alternative healthcare financing mechanisms provided an overview of financing in SSA, with a particular focus on their efficiency in mobilizing revenue, equity in the distribution of burden of payments, and the extent of financial protection coverage. Although there was also some reference to the impact of these financing mechanisms on health service utilization, the current section has a more explicit focus on the second UHC goal, namely access to quality health services for all. Due to space constraints, a very brief overview is provided with supporting data provided in the appendix.

Data from recent Demographic and Health Surveys demonstrate substantial unmet need in key maternal and child health services (Appendix Table 1). In many SSA countries, less than half of pregnant women attended the recommended 4 or more antenatal care (ANC) visits or delivered in a healthcare facility, with service coverage being as low as 16% (Mauritania) and 11% (Ethiopia) respectively. Similarly, the proportion of children with acute respiratory infections or with diarrhea who were taken to a healthcare facility for treatment are consistently low in most SSA countries, being as low as 27% (Chad) and 24% (Cameroon) respectively (USAID, 2017).

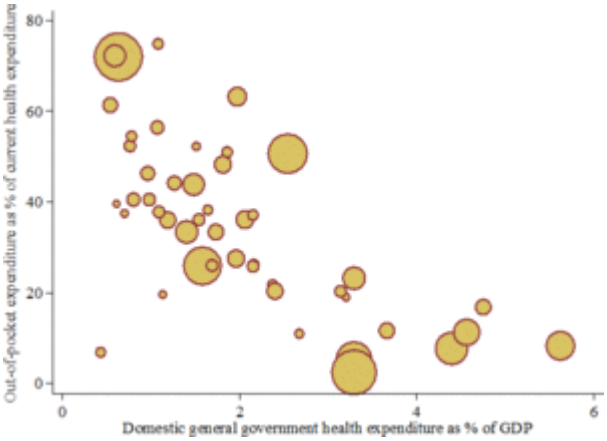
Although there is limited evidence on health service quality in SSA, effective coverage, which combines the above crude service coverage data with quality of care indicators, highlights considerable gaps between need and access to and use of quality healthcare (Kruk, 2016; Ng et al., 2014). For example, a study in Kenya found that while crude coverage with key maternal and child health interventions was 68.1%, effective coverage was only 50.9% (Nguhiu, Barasa, & Chuma, 2017). Effective malaria case management coverage in SSA countries ranged from 7% in Somalia to 71% in Botswana, with only 40% of fevers managed appropriately in SSA (Galactionova, Tediosi, de Savigny, Smith, & Tanner, 2015).

Recent studies demonstrate that not only is there low utilization of quality health services relative to need, there are considerable inequalities in utilization of health services in SSA countries (see Appendix Table 2). With very few exceptions (e.g., Mauritius), there are strongly pro-rich disparities in the utilization of health services in SSA. There is also a pro-rich distribution of benefits from healthcare spending in SSA countries (see Appendix Table 3; Asante, Price, Hayen, Jan, & Wiseman, 2016).

The revenue collection function of healthcare financing can influence utilization patterns, such as where OOP payments pose a barrier to access or due to the moral hazard consequences of health insurance scheme contributions. The pooling function also plays a role: the nature of fund pooling influences the extent to which there is utilization on the basis of need for healthcare rather than ability-to-pay. However, it is the purchasing function of healthcare financing that is of greatest relevance to equitable access to and utilization of quality health services. Strategic purchasing involves decisions on what services to purchase, which should be in line with population healthcare needs, and on how to contract with and pay healthcare providers, which can influence the distribution of providers and the efficiency and quality of healthcare provision. Despite the importance of the purchasing function, there has been very little research on this issue in SSA. The only available research found very little evidence of strategic purchasing in the health systems of Kenya, Nigeria, and South Africa (Etiaba, Onwujekwe, Ogochukwu, & Uzochukwu, 2016; Honda & McIntyre, 2016A, 2016B; Munge, Mulupi, & Chuma, 2018; Ogochukwu, Onwujekwe, Etiaba, & Ozochukwu, 2016).

Financing Progress to UHC in SSA Countries

SSA countries face considerable challenges in financing healthcare to progress towards UHC, in relation to both the goals of financial protection and access to quality health services. From a financial protection perspective, it is of considerable concern that OOP payments still account for an average of 36% of current healthcare expenditure in SSA. While removing user fees at public sector health facilities has assisted in reducing financial barriers, this policy is of little value if public facilities remain underfunded and of poor quality. The key policy and research question now is: what prepayment mechanism(s) are best able to move SSA countries towards the UHC goals of financial protection and access to quality health services for all residents? An analysis to explore which financing mechanisms are associated with lower shares of current healthcare expenditure attributable to OOP payments and hence, greater financial protection, in SSA countries found little relationship between less reliance on OOP payments and voluntary health insurance, mandatory health insurance or external funding, but a strong relationship with government expenditure on health (see Figure 6 and Appendix Figure 1 TO 4). Figure 6 also shows that SSA countries with higher GDP per capita do not necessarily have higher levels of government funding and some still have quite a heavy reliance on OOP payments for funding health services.



Click to view larger

Figure 6. OOP payments as percentage of current health expenditure (CHE) against government health expenditure as percentage of GDP, SSA, 2015

Source: http://apps.who.int/nha/database/Select/Indicators/en.

Note: Size of the bubble = proportional size of real GDP per capita.

There is international consensus that mandatory prepayment is the most appropriate mechanism for moving towards UHC, not only because of its financial protection benefits but also because higher levels of public healthcare funding have been shown to translate into lower child and adult mortality, particularly in lower-income countries (Moreno-Serra & Smith, 2015). This could be pursued through tax funding and other government revenue sources alone, or in combination with mandatory health insurance contributions. Policy statements by SSA governments indicate that some form of mandatory health insurance is the preferred option in most countries. There are several critical policy and research

questions that need to be explored to assess whether or not mandatory health insurance (MHI) scheme(s) will assist SSA countries in achieving UHC goals.

The first set of questions relate to the approach adopted by some SSA countries of introducing MHI scheme(s) either for all formal sector workers or just for civil servants. Given that formal sector workers are typically the most advantaged members of society, an approach that starts with formal sector workers is considered by many as inequitable (Norheim, 2015). From a conceptual perspective, this approach is at odds with the thinking behind UHC; it has been argued that a major advance of the UHC approach is that it emphasizes a universal entitlement to financial protection and access to quality health services for all residents in a country and moves away from entitlements based on employment status (World Health Organization, 2010). This UHC approach is seen as important based on experience in other low- and middle-income countries where it has proved difficult to expand MHI scheme coverage to other groups, not only due to low formal employment levels and growth rates, but also due to vociferous resistance from formal sector workers protecting their “superior” health service benefits and opposed to cross-subsidizing comparable service benefits for those outside the formal employment sector (Kutzin, 2013; Pettigrew & Mathauer, 2016). Of concern is that such opposition is already being experienced in SSA countries that have chosen to initially cover only formal sector employees through mandatory health insurance. In 2008, Tanzania considered “harmonizing” its district level community health funds for those in the informal sector and integrating them with the mandatory NHIF for civil servants to create a single scheme covering the whole population. This was vociferously opposed by civil servants who did not want their NHIF contributions to cross-subsidize benefits for others (Borghi et al., 2013). A key research question that would assist in policy debates about the equity of MHI cover for formal sector employees only is the amount of government revenue devoted to funding privileged access to healthcare and financial protection via the MHI. In SSA countries, civil servants are the single largest group, and often constitute the majority, of formal sector employees; the government makes employer contributions to the MHI scheme for civil servants. It is important that the magnitude of these contributions is transparent and assessed relative to government expenditure on healthcare for the rest of the population.

The second set of questions relate to the approach adopted by a few SSA countries of making health insurance scheme membership “mandatory” for everyone in the country. While this approach undoubtedly leads to less fragmentation in funding arrangements than focusing MHI only on formal sector workers, it is only feasible to enforce membership and associated contributions for those in formal employment; membership is effectively voluntary for those working in subsistence agriculture and other parts of the informal sector, who constitute the vast majority of the SSA population. In this context, considerable effort is required to expand and sustain coverage of the informal sector and overcome the problems of adverse selection. For example, countries such as Rwanda and Ghana that have achieved the highest coverage levels have used “agents” to go door-to-door to persuade households to sign up (Ghana) and exerted considerable political pressure on local communities (in Rwanda, mayors’ performance contracts include CBHI

coverage in their districts). As it is difficult to sustain such efforts in the long-term, both countries have seen a gradual decline in population coverage. It is of concern that a key strategy to “incentivizing” scheme membership is that of charging those who do not become members of the insurance scheme(s) fees at the time of using a health service. Given that the poor find affordability of insurance scheme contributions the most challenging, they are most exposed to a lack of financial protection when in need of healthcare. A key research question in assessing the value of “mandatory” health insurance scheme coverage for the informal sector is to document and make transparent not only the gross revenue generated from these contributions, but also the net revenue after the full costs of collecting this revenue or managing the myriad of local health insurance offices required to facilitate signing up and annually renewing the membership of community members. Another critical research question is the incidence of such contributions; given that they are almost always flat contributions, they are undoubtedly regressive but the extent of regressivity should be assessed.

Empirical evidence on these sets of research questions will be important in informing a fundamental policy debate, namely whether SSA countries should be pursuing a contributory MHI scheme approach where individuals are only entitled to preferential financial protection and health service access benefits based on making contributions. It is very seldom acknowledged explicitly in these policy debates that substantial tax and other government revenue, and often external funding, is used to subsidize MHI contributions to fund benefits for members. In the context of this reality, why is there this dominant focus on a contributory approach in SSA countries? A consistent message in policy discussions is that many in the informal sector “have lots of money” and that they can and should contribute towards the costs of healthcare. This reflects legitimate concerns about the narrow personal income tax base in SSA countries, but all too often, there is inadequate recognition that those in the informal sector do pay taxes, albeit generally only via indirect taxes. Questions that should be posed and addressed as dispassionately as possibly in the context of frequently heated policy debates, which can be facilitated by strong empirical evidence, include:

- What are the main categories of informal sector activity within the country? What is the nature of financial flows in the informal sector, including timing and levels of income?
- Are health insurance contributions by the informal sector the most efficient way of generating revenue for the health sector? What is the net revenue generated from these contributions?
- Would indirect taxes be a more efficient mechanism for generating revenue from the informal sector?
- What is the financing incidence of the full range of indirect taxes in different SSA countries? How could the regressivity of specific indirect taxes be minimized? Are specific indirect taxes borne predominantly by those categories of informal sector workers whose incomes are highest?

Another issue that is relevant in the contributory health insurance versus increased tax funding debate that is relevant to formal and informal sector workers alike is a "perceptional" issue, namely that contributions to a MHI scheme creates awareness among members of entitlement to health service benefits which is not necessarily the case in tax funded systems. The extent to which this could be addressed by clearly indicating and creating widespread awareness that an element of specific taxes is earmarked for funding access to quality healthcare for all is another issue that could be explored. An example of this is the 2.5% NHI levy component of VAT in Ghana; a similar approach could be adopted in other indirect taxes as well as direct taxes such as through a health system surcharge on personal and/or company income tax.

Finally, there is a growing emphasis on monitoring progress to UHC, particularly given the inclusion of UHC in the SDGs (World Health Organization & World Bank, 2017; Hogan, Stevens, Hosseinpoor, & Boerma, 2017). There is a need for further methodological development to support such monitoring, particularly in terms of the thresholds used in assessing catastrophic health expenditure including the potential use of different thresholds for households with different income levels and other socio-economic characteristics (Ataguba, 2012). In addition to the global monitoring of core SDG indicators, it will be important for individual countries to monitor changes in healthcare financing mechanisms with detailed assessments of the extent to which these changes promote progress to UHC.

Conclusion

Ultimately, if SSA countries are serious about pursuing UHC, it is critical that strong empirical evidence is brought to bear on the policy debates about the most efficient and equitable way of funding health services. The patchwork of existing research findings strongly points in a particular direction, namely that contributory health insurance schemes are unlikely to be the most efficient or equitable means of financing health services in SSA countries. They tend to lead to and entrench differential financial protection and health service access across socio-economic groups, and the poorest tend to remain without financial protection or access to quality healthcare. Within this context and given the need to gradually reduce reliance on external funding, SSA countries should be considering how to increase domestic government revenue to fund quality health and other social services for all. Recent research has demonstrated that this is feasible, often through improving tax collection mechanisms, but may require increases in tax rates and/or the introduction of new taxes. To break through the emotive nature and heavy reliance on unproven "conventional wisdom" in these policy debates, there is an urgent need for a comprehensive set of empirical evidence on the efficiency, equity and sustainability of alternative healthcare financing mechanisms from a wide range of SSA countries that is based on rigorous methodological approaches.

While some of these research questions have traditionally been seen as the domain of economists specializing in public finance, applied economists working in the health and other social sectors have a role to play and should seek to collaborate with public finance economists to provide the strongest possible evidence base for these critical policy debates. There is also an urgent need for health economists to support Ministries of Health in assessing the efficiency of use of existing government funds, identifying ways of promoting efficiency, equity, and health service quality, and compiling evidence that demonstrates strong performance in this regard. This is critical if Ministries of Health are to succeed in making an effective case for adequate funding of health services from government revenue, without compromising allocations to other social services that are important social determinants of health.

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Appendix

Appendix Table 1 presents data from the latest country demographic and health surveys on access to selected maternal and child health interventions in sub-Saharan African countries.

Appendix Table 1. Coverage With Selected Priority Interventions in Sub-Saharan African Countries

Country	Survey and Year	Attendance of 4 or More ANC Visits	Delivery in a Healthcare Facility	Children with ARI Taken to a Health Facility	Child with Diarrhea Taken to a Health Facility
Angola	2015–16 DHS	60%	47%	48%	44%
Benin	2011–12 DHS	58%	88%	34%	37%
Benin	2001 DHS	61%	78%	42%	26%
Botswana	1988 DHS	-	-	-	-
Burkina Faso	2010 DHS	33%	72%	56%	49%
Burundi	2010 DHS	34%	65%	60%	60%
Cameroon	2011 DHS	61%	63%	30%	24%
Cameroon	1998 DHS	53%	54%	34%	28%
Central African Republic	1994–95 DHS	39%	50%	41%	30%
Chad	2014–15 DHS	31%	24%	27%	26%

Comoros	2012 DHS	49%	78%	43%	41%
Congo	2011–12 DHS	77%	92%	56%	37%
Congo Democratic Republic	2013–14 DHS	47%	80%	43%	39%
Cote d’Ivoire	2011–12 DHS	43%	59%	38%	30%
Eritrea	2002 DHS	41%	28%	47%	46%
Ethiopia	2011 DHS	18%	11%	31%	32%
Gabon	2012 DHS	77%	91%	52%	39%
Gambia	2013 DHS	77%	63%	64%	68%
Ghana	2014 DHS	86%	75%	54%	49%
Guinea	2012 DHS	56%	41%	39%	40%
Kenya	2014 DHS	56%	64%	68%	58%
Lesotho	2014 DHS	73%	79%	65%	52%
Liberia	2013 DHS	78%	59%	54%	47%

Madagascar	2008–09 DHS	47%	35%	47%	36%
Malawi	2015–16 DHS	50%	92%	76%	61%
Mali	2012–13 DHS	41%	58%	29%	32%
Mauritania	2000–01 DHS	16%	49%	39%	28%
Mozambique	2011 DHS	50%	57%	50%	59%
Namibia	2013 DHS	62%	88%	69%	64%
Niger	2012 DHS	33%	33%	55%	52%
Nigeria	2013 DHS	51%	37%	35%	29%
Rwanda	2014–15 DHS	44%	92%	55%	45%
Sao Tome and Principe	2008–09 DHS	72%	80%	73%	49%
Senegal	2014 DHS	47%	78%	47%	33%
Sierra Leone	2013 DHS	76%	58%	72%	66%
South Africa	1998 DHS	73%	85%	80%	61%

Swaziland	2006–07 DHS	79%	75%	73%	72%
Tanzania	2015–16 DHS	49%	64%	59%	43%
Togo	2013–14 DHS	56%	75%	51%	31%
Uganda	2011 DHS	47%	59%	79%	73%
Zambia	2013–14 DHS	54%	71%	72%	68%
Zimbabwe	2015 DHS	74%	79%	50%	40%
Unweighted Mean		**54%**	**64%**	**52%**	**45%**

Notes: *ANC – antenatal care; ARI – acute respiratory infection

Source: USAID (2017)

Appendix Table 2. Findings on Inequality in Access and Use of Healthcare Services in Sub-Saharan African Countries From Recent Studies

Study	Country	Year of Data	Healthcare Service	Concentration Index*
Adeyanju, Tubeuf, and Ensor (2017)	Nigeria	2008 DHS	Four or more ANC visits	0.26
			Skilled birth attendance	0.43
			Child immunization**	0.11
			Diarrhea treatment	0.07
			Fever and cough treatment	0.09
Malderen et al. (2013)	Kenya	2008 DHS	Skilled birth attendance	0.14
			Measles immunization	0.08
Memirie, Verguet, Norheim, Levin, and Johansson (2016)	Ethiopia	2011 DHS	Measles immunization	0.085
			Use of modern contraceptive methods	0.275

			Four or more ANC visits	0.353
			Delivery in health facilities	0.501
Bonfrer, van de Poel, Grimm, and Van Doorslaer (2014)	Burkina Faso	2003 DHS	Four or more ANC visits	0.15
			Skilled birth attendance	0.35
		2003 WHS	Utilization of any care	0.11
			Utilization of inpatient care	0.08
	Chad	2004 DHS	Four or more ANC visits	0.27
			Skilled birth attendance	0.33
		2003 WHS	Utilization of any care	0.09

			Utilization of inpatient care	0.06
	Comoros	1996 DHS	Four or more ANC visits	0.39
			Skilled birth attendance	0.47
		2003 WHS	Utilization of any care	0.11
			Utilization of inpatient care	0.05
	Congo	2005 DHS	Four or more ANC visits	0.23
			Skilled birth attendance	0.26
		2003 WHS	Utilization of any care	0.08
			Utilization of inpatient care	0.03

	Ivory Coast	1998 DHS	Four or more ANC visits	0.37
			Skilled birth attendance	0.49
		2003 WHS	Utilization of any care	0.16
			Utilization of inpatient care	0.08
	Ethiopia	2005 DHS	Four or more ANC visits	0.21
			Skilled birth attendance	0.17
		2003 WHS	Utilization of any care	0.05
			Utilization of inpatient care	0.04
	Ghana	2008 DHS	Four or more ANC visits	0.25

			Skilled birth attendance	0.44
		2003 WHS	Utilization of any care	0.11
			Utilization of inpatient care	0.07
	Kenya	2008 DHS	Four or more ANC visits	0.25
			Skilled birth attendance	0.46
		2003 WHS	Utilization of any care	0.07
			Utilization of inpatient care	0.04
	Malawi	2004 DHS	Four or more ANC visits	0.15
			Skilled birth attendance	0.29
		2003 WHS	Utilization of any care	0.07

			Utilization of inpatient care	0.06
	Mali	2006 DHS	Four or more ANC visits	0.3
			Skilled birth attendance	0.36
		2003 WHS	Utilization of any care	0.05
			Utilization of inpatient care	0.01
	Mauritania	2003 WHS	Utilization of any care	0.12
			Utilization of inpatient care	0.09
	Mauritius	2003 WHS	Utilization of any care	−0.06
			Utilization of inpatient care	−0.01
	Namibia	2006 DHS	Four or more ANC visits	0.11

			Skilled birth attendance	0.34
		2003 WHS	Utilization of any care	0.03
			Utilization of inpatient care	0.06
	Senegal	2005 DHS	Four or more ANC visits	0.28
			Skilled birth attendance	0.66
		2003 WHS	Utilization of any care	0.1
			Utilization of inpatient care	0.04
	South Africa	2003 WHS	Utilization of any care	0.08
			Utilization of inpatient care	0.11
	Swaziland	2006 DHS	Four or more ANC visits	0.1

			Skilled birth attendance	0.34
		2003 WHS	Utilization of any care	0.07
			Utilization of inpatient care	0.07
	Zambia	2007 DHS	Four or more ANC visits	0.07
			Skilled birth attendance	0.54
		2003 WHS	Utilization of any care	−0.04
			Utilization of inpatient care	0.03
	Zimbabwe	2005 DHS	Four or more ANC visits	0.13
			Skilled birth attendance	0.3
		2003 WHS	Utilization of any care	−0.05

			Utilization of inpatient care	0.05

(*) WHO-World Health Survey, DHS-Demographic and Health Surveys.

(**) A positive (negative) concentration index represents pro-rich (poor) inequality.

(***) Children under two years had received all three of the following vaccines: three doses of Diphtheria, Pertussis, and Tetanus (DPT), three doses of polio, Bacillus Calmette–Guérin (BCG), and measles at the time of the survey.

Appendix Table 3. Findings on Inequality in Benefiting From Healthcare Spending in Sub-Saharan African Countries From Recent Studies

Study	Country	Year of Dataset	Service	Concentration Index
Chuma, Maina, and Ataguba (2012)	Kenya	2007	Public primary healthcare facilities	−0.15
			Public hospital outpatient	0.22
			Public hospital inpatient	0.07
			Private not for profit primary healthcare facilities	−0.12
			Private not for profit hospital outpatient	−0.06
			Private not for profit hospital inpatient	−0.10
			Private for profit primary healthcare facilities	0.10

			Private for profit hospital outpatient	0.25
			Private for profit hospital inpatient	0.31
Akazili, Garshong, Aikins, Gyapong, and McIntyre (2012)	Ghana	2005	Clinic/health centers	0.06
			District hospital	0.11
			Regional/teaching hospital	0.21
			Private hospital/clinic	0.24
			Self-treatment (pharmacies/chemical sellers and other home remedies)	−0.03
			Traditional healer visit	0.32
World Bank (2012B)	Malawi	2003	Public primary healthcare facilities	0.11

			Public hospital outpatient	0.17
			Public hospital inpatient	0.79
Mtei et al. (2012)	Tanzania	2008	Public primary healthcare facilities	−0.10
			Public district hospital outpatient	0.15
			Public district hospital inpatient	−0.14
			Public regional and referral hospital outpatient	0.14
			Public regional and referral hospital inpatient	0.29
			Faith-based primary facilities outpatient	0.07

			Faith based hospitals outpatient	0.19
			Faith based hospitals inpatient	−0.12
			Private facilities outpatient	0.37
			Private facilities inpatient	0.68
			Pharmacies	-0.10
Kwesiga, Ataguba, et al. (2015)	Uganda	2009	Public hospital	0.10
			Public health unit	−0.167
			NGO hospital	0.23
			NGO health unit	−0.049
			Private clinics	0.11
			Drug shops/Pharmacies	−0.091

Shamu et al. (2017)	Zimbabwe	2010	Public district health services outpatient	−0.18
			Public provincial and central health services outpatient	0.06
			Local government health services outpatient	0.04
			Mission health services outpatient	−0.03
			Public district hospital inpatient	−0.13
			Public provincial and central hospital inpatient	0.19
			Mission hospital inpatient	0.03

(*) A positive (negative) concentration index represents pro-rich (poor) inequality.

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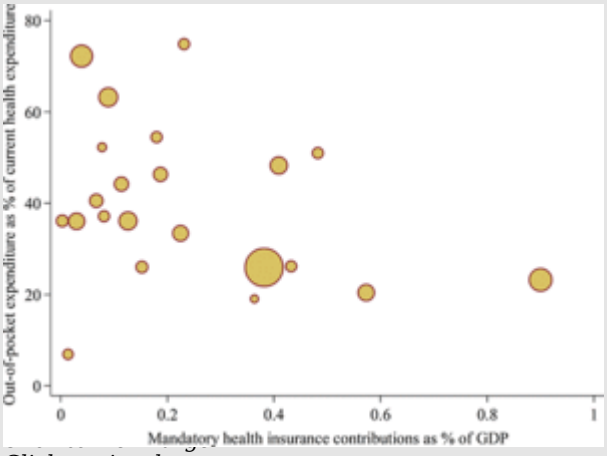
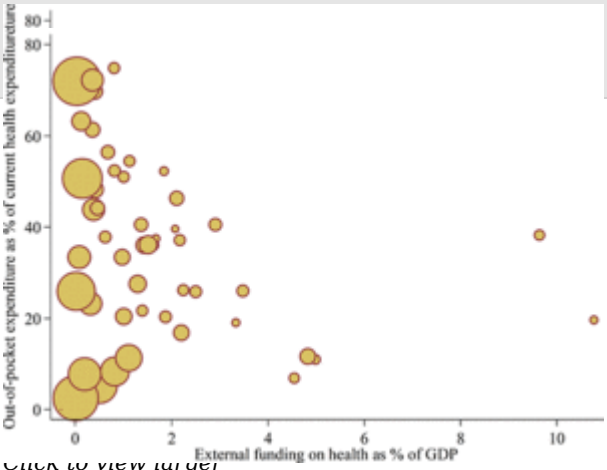


Click to view larger

Appendix Figure 1. OOP Payments as Percentage of Current Health Expenditure (CHE) Against Mandatory Health Insurance Contributions as Percentage of GDP, SSA, 2015.

Note: Size of the bubble = proportional size of real GDP per capita.

Source: http://apps.who.int/nha/database/Select/Indicators/en.



Click to view larger

Appendix Figure 2. OOP Payments as Percentage of CHE against Voluntary Health Insurance Contributions as Percentage of GDP, SSA, 2015 (Excluding Botswana & South Africa).

Note: Size of the bubble = proportional size of real GDP per capita.

Source: http://apps.who.int/nha/database/Select/Indicators/en.

Appendix Figure 3. OOP Payments as Percentage of Current Health Expenditure (CHE) Against Mandatory Health Insurance Contributions as Percentage of GDP, SSA, 2015.

Note: Size of the bubble = proportional size of real GDP per capita.

Source: http://apps.who.int/nha/database/Select/Indicators/en.

Appendix Figure 4. OOP Payments as Percentage of Current Health Expenditure (CHE) Against External Funding as Percentage of GDP, SSA, 2015.

Note: Size of the bubble = proportional size of real GDP per capita.

Source: http://apps.who.int/nha/database/Select/Indicators/en.