Mozambique Health Public Expenditure Review

2009-2013

The World Bank

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Acronyms/Abbreviations

APE	*Agentes Polivalentes Elementares* - Community Health Workers in Mozambique
BIA	Benefit Incidence Analysis
CHW	Community Health Worker
CMAM	*Central de Medicamentos e Artigos Médicos* - Central Drugs and Medical Supplies Procurement Service
CNCS	*Conselho Nacional de Combate ao HIV e SIDA* - National Council to Combat HIV-AIDS
CUT	*Conta Única do Tesouro - Treasury Account*
DfID	Department for International Development (UK)
DPS	*Direcção Provincial de Saúde* - Provincial Directorates of Health
e-SISTAFE	*Eletrônico-Sistema de Administração Financeira do Estado* - Electronic Financial Administrative System
GBS	General Budget Support
GFATM	Global Fund for AIDS, Tuberculosis, and Malaria
HIV	Human immunodeficiency virus
IFE	*Inquerito dos Fundos Externos*
IMCI	Integrated Management of Childhood Illness
IMR	Infant Mortality Rate
IOF	*Inquérito aos Orçamentos Familiares* - Household Budget Survey
KITS	Drug Kit System
MCH	Maternal and Child Health
MDGs	Millennium Development Goals
MEF	Ministry of Economics and Finance
MMR	Maternal Mortality Rate
MoH	Ministry of Health
NHA	National Health Accounts
NHS	National Health Service
OE	*Orçamento do Estado - State Budget*
OOPs	Out of pocket payments
PEN	*Plano Estratégico Nacional de combate ao HIV/SIDA* - National Strategic Plan for the Combating of STDs/HIV/AIDS 2000-2002
PEPFAR	President's Emergency Plan for AIDS Relief
PER	Public Expenditure Review
PESS	Plano Estratégico do Sector da Saúde
PETs	Public Expenditure Tracking System
PMI	President's Malaria Initiative
SDI	Service Delivery Indicators
SP	Sulfadoxine-Pyrimethamine
SSA	Sub-Saharan Africa
SWAp	Sector-wide approach
U5MR	Under-five mortality rate

Executive Summary

Focus on primary health care, promoting equity and providing better quality of services are the top three guiding principles of the health sector strategic plan. The implementation of these principles laid out in the health sector strategic plan or the *Plano Estratégico do Sector da Saúde* (PESS) for Mozambique, 2014-2019 (MoH 2013a) determines achievement of the health targets of the Millennium Development Goals (MDGs), a way of measuring success in improving health outcomes.

Despite improvements in various indicators, Mozambique faces the difficult task of achieving better outcomes with limited resources. Under-five mortality (U5MR) more than halved from 220 per 1000 live births in 1993 to 87 per 1,000 in 2013 (UNICEF 2014). Over the same period, the maternal mortality ratio (MMR) declined by nearly a third from 1000 per 100,000 live births to 408 (MDHS 2013; World Bank 2014a). Mozambique has been identified as one of 52 countries facing a severe shortage of health workers, requiring increased health spending to accommodate this dearth. Elevating the number of health personnel is an essential input in the process of improving service delivery and achieving better outcomes. With a ratio of 4.5 health workers per 10,000 population,[1] Mozambique falls short of the suggested minimum ratio of 23 health workers (doctors, nurses, and midwives) per 10,000 population to deliver basic maternal and child health services (WHO 2006).

Increased spending in a resource-constrained context is hard to achieve through internal sources alone and the gap is often filled up by external financing, contributing as much as 71 percent to total public spending of 32 billion MT (1 billion USD) in 2013. Sixty four percent of this is managed directly by donors and takes the form of ***disease funding, with HIV-AIDS dominating*** at more than three-quarters by 2013. External financing of maternal and child health programs, on the other hand, has gone down. Of the external funds, the health sector common fund or *ProSaude* contributes seven percent to total public expenditure, down from 14 percent in 2009. *ProSaude* is managed by the Government according to a Memorandum of Understanding with the country partners.

The state budget (internal fund) contribution of 29 percent to total public health spending is much lower than externally sourced financing. Most of this is directed to care facilities, with an ***increase in spending on primary and secondary care*** over the past few years. There is specifically a rise in basic care, in line with PESS priorities to support primary care linking it to the overall goal of poverty reduction. While in 2009 the primary and secondary levels (excluding rural hospitals) constituted 13 percent of the state budget, by 2013 it rose to a quarter. Spending on tertiary and quaternary care has reduced from 25 percent to 21 percent. Nearly 70 percent of the spending on care facilities in 2013 was on personnel expenses with goods and services, excluding medicines, making up the rest.

[1] Calculated from 2010 data available for ratios of doctors, nurses, and midwives per 10,000 population (WHO 2014).

A move in the direction of an increasing share of basic care is aided by gradual ***deconcentration*** **(**transfer of administrative function from one level to another) bringing spending decisions closer to beneficiaries at the primary level. Evidence of deconcentration is apparent in the rise in the share of district-level spending, particularly on the salary account**.**

Spending distribution across provinces is not always equitable. Provincial spending is not always proportional to population size or poverty and IMR. For example, Zambezia contributes 19 percent of the country's population but its health spending share is 13 percent and it has the highest IMR in the country as well as the highest poverty rate. On the other hand, while Sofala spends five percentage points more than its population share, which could be attributed to the presence of a Central Hospital in the province, Nampula, spends three percentage points less than its population size despite having a Central Hospital.

Inequities are apparent at the household level as well. Top quintiles receive a large share of the health expenses primarily because they access services more when sick. Policies would need to provide increased focus on improving outreach to include a wider scope of services covering both preventive care and clinical services.

Inequitable resource allocation could be identified as a possible source of inefficiency, among others, at the provincial level. Provincial level analysis finds that efficiency gains could finance seven percent of the financing gap of 53 USD per capita to fund an essential services package. Two possible sources of inefficiency lie in inequitable resource allocation and composition of staff. The former could result in high costs of delivering services relative to outcomes. At the same time worker overload in provinces with low delivery costs could compromise quality, further reinforcing the importance of resource allocation to balance out workloads and realigning costs. The staff make up is often skewed towards more administrative staff in provinces that have lower health worker to population ratio and could be contributing to inefficiencies. This finding needs to be supplemented with a more detailed study of staff mix at different health facilities and assess how imbalances could be redressed to attain higher efficiency.

Mozambique is moving in a positive direction with improvements in various outcomes and spending shifting towards sector priorities. However, these would require a change in the health sector's strategic planning processes to give an even greater weight to primary and secondary care, along with an emphasis on providing community based interventions to improve outreach. Resources would need to be allocated according to the needs of a province and target specific segments of the population with lower than average outcomes. The importance of improving and strengthening maternal and child health care, which is at the foundation of the primary care program, cannot be underscored enough. Not only would it be necessary to align increased spending here but also identify bottlenecks to improve service delivery. There is potential for high social and economic returns if used in conjunction with cost-effective interventions such as engaging community health workers along with the requisite supervision and technical support to make the programs successful.

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Mozambique health public expenditure review

1. Introduction

1. **The Mozambique health public expenditure review (PER) for 2009-2013 assesses trends in expenditure, where spending is directed, and whether it is aligned to policy priorities**. As with other PERs the underlying objective of such an analysis is to evaluate changes needed to attain more effective, efficient, and equitable outcomes.

2. **Focus on primary health care, promoting equity and providing better quality of services are the top three guiding principles of the health sector strategic plan**. The implementation of these principles laid out in the health sector strategic plan or the *Plano Estratégico do Sector da Saúde* (PESS) for Mozambique, 2014-2019 (MoH 2013a) determines achievement of the health targets of the Millennium Development Goals (MDGs), a way of measuring success in improving health outcomes.

3. **This report begins with a brief overview of Mozambique's health and nutrition status** related to MDGs 1c, 4, 5, and 6: reducing hunger; reducing child mortality; improving maternal health; and reducing HIV prevalence, malaria, and other communicable diseases (UNDP 2010). We simultaneously outline where the country stands in relation to others in the region and mention relevant policies in place, ending the section with challenges the country faces in improving outcomes in relation to current spending. The subsequent section provides a summary of the flow of funds and sector organization followed by a discussion on the data and its limitations. Section 4 examines trends in expenditure and the economic, administrative, geographic and functional composition of spending from 2009 to 2013. Section 5 compares briefly spending and outcomes and presents an efficiency analysis. Section 6 undertakes a benefit incidence analysis. Section 7 concludes with main findings and recommendations.

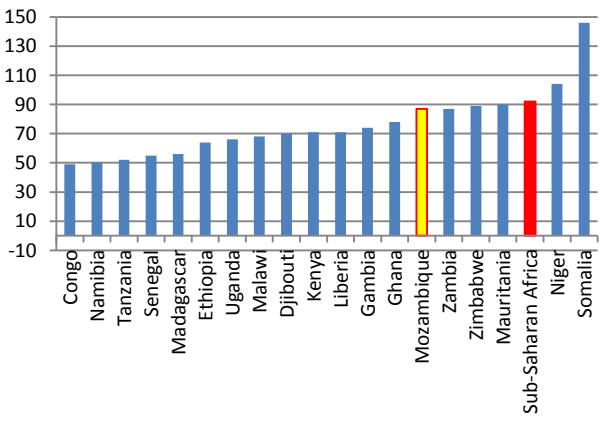
1.1. Health achievements

4**. Mozambique's performance on key health outcomes of under-five mortality and maternal mortality post-civil war in 1992 has been impressive and the Government shows a commitment to achieve more.** Under-five mortality (U5MR) more than halved from 220 per 1000 live births in 1993 to 87 per 1,000 in 2013 (UNICEF 2014). Over the same period, the maternal mortality ratio (MMR) declined by nearly a third from 1000 per 100,000 live births to 408 (MDHS 2013; World Bank 2014a). A number of policies are in place to accelerate reduction in child and maternal mortality, including the Integrated Plan to Reach MDGs 4 and 5 (2009-2012 (2015)), the National Malaria Control Program, HIV and AIDS Plan, and Sexual and Reproductive Health programs to mention a few. The sector has also developed and has been implementing several health system related plans such as the Human Resource for Health Plan and the Pharmaceutical Logistic Strategic Plan to support and improve service delivery. We discuss now where Mozambique stands relative to other countries in the region and briefly mention specific policies.

5. **Even though MMR is lower than the Sub-Saharan African average of 510 maternal deaths per 100,000 live births, it is higher than some other countries in the region, such as Zambia's 280**. Given the MDG target of reducing MMR by three quarters from 1990 to 2015 requires an achievement of a rate of 228 maternal deaths per 100,000 live births. A twin objective of this MDG is the achievement of a 100 percent rate of child births attended by a skilled health professional; the current rate stands at a little over 50 percent (World Bank 2014a; UNDP 2013; MDHS 2013). Policy priorities include improving access to institutional deliveries as well as providing intermittent preventive treatment of malaria in pregnancy and integrating the prevention of mother to child transmission of HIV within reproductive and maternal care (MoH 2013a, WHO 2015).

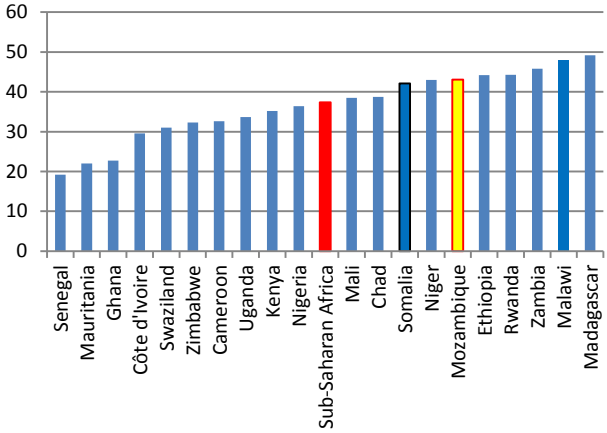
6. **At nearly the same average as Sub-Saharan Africa (SSA), the U5MR remains higher than neighboring Tanzania and Malawi and the stunting rate is among the highest in SSA** (Figures 1 and 2). Mozambique's stunting rate is estimated at 43 percent in 2013 (UNICEF 2014). Stunting is an indicator of cumulative, chronic nutritional deprivation that sets in *in utero* until two years of age and its negative impact is irreversible after the age of two. Falling under MDG 1c, reducing hunger, this indicator is particularly important for ensuring a healthy and productive population since it can affect cognitive development with long term effects of reduced productivity and life-time earnings and increased risk of chronic diseases like diabetes and hypertension (see, for example, Almond, Chay, and Lee 2005 and Alderman, Hoddinott, and Kinsey 2006). Reduction in stunting and the achievement of lower U5MR close to 78 per 1000 live births that was set for 2015 will require continued focus on primary health care encompassing maternal and child health along with an emphasis on malaria control since ***malaria alone claims 42 percent of under-fives followed by HIV*** at a little over a tenth (INCAM 2012; UNDP 2013). Mozambique's commitment to reduce child mortality (MDG 4) in a holistic way is reflected in the implementation of the Integrated Management of Childhood Illness (IMCI) strategy, in place since 1998 (MoH 2013a, WHO 2015).

Figure 1. Mozambique's U5MR is higher than some of its neighbors.



Source: State of the World's Children, 2013

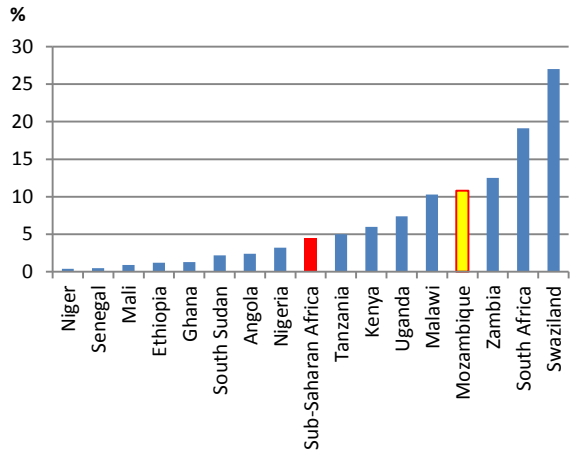
Figure 2. Stunting % is among the highest in the region.



Source: State of the World's Children, 2013

7. **Infectious diseases accounted for over three quarters of all deaths after the neonatal period until four years and malaria remains the biggest killer.** With a prevalence of 10.8 percent in 2013 and about 1.5 million Mozambicans living with the virus, **HIV** is considered a general epidemic, not confined to specific risk groups. Geographically located in Southern Africa, the epicenter of the HIV epidemic, prevalence is among one of the highest in Sub-Saharan Africa, though lower than three of its immediate neighbors, South Africa, Swaziland, and Zambia (Figure 3). Women have a higher prevalence rate of 13.1 percent relative to 9.2 percent for men. Moreover, 15 percent of pregnant women carry HIV, having implications for mother to child transmission. In 2000, the Government adopted the National Strategic Plan (PEN I) and set up the National Council to Combat AIDS (CNCS), with the aim of preventing new cases and providing care and treatment to those affected through multi-sector coordination. Significant donor aid has also been directed towards HIV/AIDS, as discussed in later sections. A likely result of these efforts, anti-retroviral coverage among those living with HIV has risen from 18 to 32 percent over 2011 to 2013 (WDI2015, INCAM 2012, WHO 2015).

Figure 3. HIV prevalence rate in Mozambique is high.



Source: WDI 2015

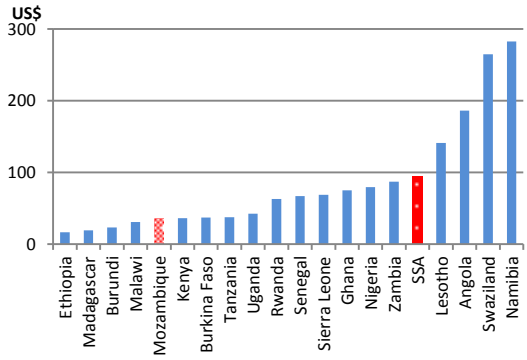
8. Mozambique is regarded as one of 22 high burden countries for **tuberculosis** (TB) with a prevalence rate, including HIV/TB co-infections, of 490 per 100,000 in 2011. Since 2008, the Government has adopted a National TB strategy 2008-2012. One of the greatest challenges the country faces in tackling TB is in reducing TB-HIV coinfections, with about two-thirds of the cases overlapping. The problem is surmounted by the emergence of multidrug resistant TB (WHO 2015).

9. Finally, as mentioned earlier on, **malaria** accounts for the highest number of lives lost in children under five. The disease is endemic throughout the country. Nearly half of all outpatient visits are malaria cases and 26 percent of all hospital deaths are attributed to malaria. Following an evaluation of the National Malaria Control Program in 2010, a Malaria Policy and Strategic Plan 2012-2016 is now in place with the primary objective of improving monitoring and evaluation and scaling up the program for better outreach (WHO 2015).

1.2. Resource constraints in improving outcomes

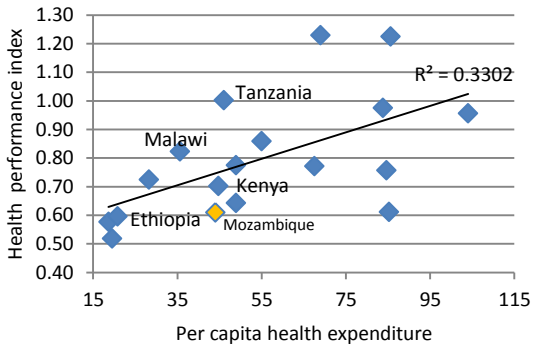
10. **Mozambique has been identified as one of 52 countries facing a severe shortage of health workers, requiring increased health spending to accommodate this dearth.** Elevating the number

Figure 4. Mozambique's per capita health expenditure is low.



Source: World Bank 2014b

Figure 5. Mozambique could achieve more with the same per capita spending.



Source: World Bank 2014b and WDI (2014) data

of health personnel is an essential input in the process of improving service delivery and achieving better outcomes. With a ratio of 4.5 health workers per 10,000 population,[2] Mozambique falls short of the suggested minimum ratio of 23 health workers (doctors, nurses, and midwives) per 10,000 population to deliver basic maternal and child health services (WHO 2006). Additionally, a fertility rate of 5.2 children per woman in 2015 and 45 percent of the population under 15 years places considerable **demographic pressure** in supplying these basic health services (INE 2016). Meeting these challenges would require both an increase in health spending and improving efficiency to make the spending more effective.

11. **While there is a case for increasing health expenditure, given the environment of scarce resources, spending will need to be more efficient.** Despite robust growth since the end of the civil war averaging at 7.8 percent over the last two decades, Mozambique continues to rank among the poorest countries of the world with annual GDP per capita in 2013 of 605 USD (SSA average: 1,770 USD) and nearly 95 percent of the population living below 2 USD per day (Word Bank 2014b; WDI 2014). In 2001, the Heads of State of the African Union countries meeting in Abuja (WHO 2011) pledged to set 15 percent of their budget on health. At 12.5 percent of on-budget spending in 2013, Mozambique falls short of the **Abuja target**.[3] Increased spending in a resource-constrained context is hard to achieve through internal sources alone and the gap is often filled up by external financing, contributing as much as two-thirds of the total health spending in Mozambique.[4] Despite that, Mozambique's per capita expenditure on health (all sources) remains low relative to its peers and is lower than the Sub-Saharan Africa average (see Figure 4). The **per capita spending** in 2012 was 33 USD (World Bank 2014b) whereas the cost of delivering an essential package for health in 2012 is estimated at 86 USD per capita (McIntyre and Meheus 2012), implying that Mozambique has a 53

[2] Calculated from 2010 data available for ratios of doctors, nurses, and midwives per 10,000 population (WHO 2014).

[3] World Bank Staff calculations based on e-SISTAFE data; includes donor aid recorded on budget; there is substantial aid that also flows off-budget (see Section 2 and Table 1, p.13).

[4] The Abuja target for Mozambique touches 15 percent if we add off-budget external aid to the calculations.

USD per capita **financing gap**. At the same time, Mozambique's health performance index[5] (Figure 5) is below average relative to its per capita health spending (World Bank 2014b). Malawi and Ethiopia, for example, achieve better results with lower spending per capita, indicating that Mozambique has some scope for efficiency gains. Thus, while there is a case for increasing health sector spending, it is important to ensure that efficiency improvements are made. To the extent possible, given the data, we explore this in the current report. We now discuss the flow of funds and sector organization along with the data used and its limitations.

2. Organisational structure, sources of finance, and flow of funds

2.1. Organisational structure

12. **Health care in Mozambique is mainly provided publicly by the National Health Service (NHS).** The administrative institutions of the sector are the Ministry of Health (MoH) or *Ministério de Saúde*, at the central level, 11 provincial directorates, DPS, and 128 district directorates, SDSGCAC (*Servicos Distritais de Saúde, Género, Crianças e Acção Social*), formerly referred to as SDSMAS. The NHS is organised into four levels of care – primary, secondary, tertiary, and quaternary. The primary level comprises of 161 health posts and 1,271 health centres (Rural Type I and II and Urban Type A, B, and C) providing basic preventive and curative health services. Forty seven rural, general, and district hospitals lie at the next level of care with some of these also providing surgical services. Diagnostic and specialist services are available at the tertiary level of care across seven provincial hospitals. The highest or quaternary level includes the three central hospitals in Maputo, Beira and Nampula as well as two specialised hospitals. The health infrastructure, which saw considerable damage during the civil war, developed significantly after the war ended in 1992. Over 400 facilities were rehabilitated or newly built taking the total tally of facilities up to 1,053 in 1997 (Chao and Kostermans 2002). In 2004, this number was up to 1,210, a growth of 15 percent and a further increase of 18 percent by 2011, and another four percent rise by 2015 to reach the current tally of 1,491 (Anselmi et al. 2015; MOH 2015c). However, despite impressive growth in infrastructure, there are inequities in access across provinces. According to the MDHS (2011), 52 percent of women aged 15-49 years reported problems in accessing a health facility with as many as 80 percent in Zambezia and as low as 17 percent in Maputo City, highlighting provincial inequities. Access to basic care could be improved through the use of community health workers (CHWs) as we discuss later. Growth in number of facilities itself may not serve the purpose of improving access if the expansion does not serve to reduce the distance to health facilities. Anselmi *et al* (2015) find that increasing access to an hour by foot raises the likelihood of seeking care by 18 percent. At the same time, for those districts where average walking distances from health facilities are less than an hour, investing in more infrastructure would not be strategic. Instead, the emphasis ought to be on quality of care, ensuring that existing facilities are well equipped with the adequate number of health personnel per facility, based on national directives from the MOH.

[5] The index aggregates performance on malnutrition, height for age and weight for age for children under five, acute respiratory infection and diarrhea among children, low birthweight, maternal mortality rate, contraceptive prevalence and births attended by skilled staff.

13. **Medicines and medical supplies to the NHS are managed by the MoH through the Central Drugs and Medical Supplies Procurement Service (CMAM).**[6] There are two main channels for distributing drugs, the drug kit system or KITS and the *Via Classica* or requisition system. KITS provides essential medicines to the primary care level in the form of sealed kits containing a set quantity and variety of drugs. Under *Via Classica*, the different levels of care request for drugs every quarter based on their estimated need (MoH 2007a in MoH 2012a; Commonwealth Health Online 2014, MoH 2007b).

2.2. Sources of finance

14. **The health sector is financed by the state budget and external funds from donors with a small contribution from out of pocket payments (OOPs).** Taxes and own revenues fund the state budget, *Orçamento do Estado* (OE). The external funds are contributed by donors through General Budget Support (GBS), the health common fund, *ProSaude*, and the Vertical Funds. Under GBS, a

Box 1. Donor aid: SWAps,[7] *Prosaude*, and Vertical Funds

The 1990s saw a growing criticism of vertical donor aid flow to individual projects rather than through the treasury account, leading to the genesis of Sector-Wide Approaches (SWAps). A critical condition for SWAps to be effective is Government leadership and existence of a comprehensive plan, prioritized and costed to guide development partners' contributions. This is intended to be achieved by transferring resources from the donor to the treasury or the *Conta Unica do Tesouro (on-CUT)* account thereby enabling the use of national systems, greater transparency in aid, better budgeting, accounting, monitoring and evaluation, and auditing (MEF 2013; EURODAD 2010).

***ProSaude*, established in 2003, is such an arrangement where the cooperation partners pool funds to support the health sector strategic plan** (PESS) under a Memorandum of Understanding with MoH. Currently *ProSaude* partners include: Canada, Ireland, Netherlands, Switzerland, Denmark, Belgium/Flanders, Italy, Spain, UNICEF, and UNFPA.[a] Earlier signatories, Norway, Finland, France, and the European Commission have recently withdrawn from *ProSaude*. The Global Fund for AIDS, Tuberculosis and Malaria (GFATM) was also a signatory until 2008 but now channels its funds on-CUT directly to MoH mostly in the form of in-kind medicines and health supplies. The precise origin for each partner's decision to withdraw is not known (Timmermans 2015; EURODAD 2010). However, the causes may be rooted in concerns that expected benefits from the SWAp arrangements were not being materialized including spending being inconsistent with stated priorities and weak fiduciary systems.

The challenge remains in aligning and managing donor aid given that disease-specific vertical projects have seen a sharp rise in recent years. *ProSaude* contribution to total health spending (32 billion MT) has fallen from 16 percent in 2009 to seven percent in 2013 (although the pool of funds remains in the range of 2 billion MT). Vertical Funds have grown from 8 billion MT in 2009 to 20 b MT in 2013, constituting 64 percent of all spending (see Table 1, p.13). The largest contributors are GFATM at 24 percent (2.5 billion MT) in 2013 and the United States at 58 percent or 6.6 billion MT. HIV/AIDS alone receives about five billion MT, most of it under the President's Emergency Relief Fund for AIDS relief (PEPFAR) (calculated using BOOST and IFE data).

The continued presence of vertical aid calls for bridging the gap between disease-specific funding and horizontal financing to strengthen health systems, such as through health workforce development. A mechanism like *ProSaude* converges these concepts. However, its declining contribution and the influx of vertical funds, necessitates an emphasis on financing to link vertical funding with health system strengthening, termed diagonal financing (see Ooms *et al* 2006, Mussa *et al* 2013). Such an approach would enable the realization of the goals for aid effectiveness set up in the Paris Declaration in 2003 and re-emphasized in the Accra Agenda for Action in 2008.

a. DfID was one of the partners over the period this report refers to, 2009-2013, but has now withdrawn.

[6] Medical equipment is procured by *Centro de Abastecimento* (CA) under Directorate of Administration and Finance, MoH.

[7] SWAps are Sector-Wide Approaches tying donor aid to a sector, as explained earlier on.

group of 19 donors, G19, make a contribution towards the budget/OE, not ear-marked for specific sectors, however linked to macro-policies and spending in priority sectors. The budgeting across different sectors is then determined by the country's internal system. *ProSaude*, on the other hand, is a pooled funding mechanism under the Sector Wide Approach (SWAp), where funds from donors are tied directly to a sector's program, in this case health, and are managed by the Government in accordance with a Memorandum of Understanding signed between the health partners and the MoH (see also Box 1). The Vertical Funds are additional donor contributions that do not fall under the *ProSaude* SWAp and are essentially managed by the donors themselves, with some consultation with the MoH, often disbursed through non-governmental organisations (NGOs) to the ultimate beneficiaries rather than through the Government system. The group of donors that work and support the health sector program are referred to as the Health Partners Group (HPG***). In 2013, the OE contributed 29 percent to health spending; ProSaude seven percent; and the Vertical Funds 64 percent. OOPs made a small contribution of five percent in 2012*** (Table 1, p.13).[8] The OOPs are low in Mozambique. According to the household survey (IOF 2008-09)[9] of those who seek consultation when sick, 94 percent visit a public facility, which charges a token user fees of 2 MT (0.05 USD) for outpatient services in urban areas and 1 MT (0.03) in rural areas, 10 MT (0.25 USD) for inpatient fees and 5 MT or 0.12 USD for medicines.[10]

15. **Spending can be on-budget or off-budget; on-CUT or off-CUT.** Spending financed by OE and *ProSaude* is on-budget. Most of the vertical funding is off-budget. On-budget spending is recorded in the Ministry of Economy and Finance (*Ministério de Economia e Finanças*) accounts by the government's electronic financial administration system, e-SISTAFE (MEF 2012). All on-budget spending is audited by the *Tribunal Administrativo*.[11] Expenditure that is not entered on this system and is not audited is considered off-budget. Spending can further be on-CUT or off-CUT. On-CUT spending is the on-budget expenditure that flows through the Government's Single Treasury Account, *Conta Unica do Tesouro* or CUT. This account is managed by the Government with spending decisions resting with the Government. The OE and *ProSaude* funds are on-CUT (see Box 1).[12] Off-CUT spending, on the other hand, does not flow through CUT. All vertical funding is off-CUT.[13] Figure 6 shows the on/off-budget and on/off-CUT classifications. ***In 2013, 37 percent of the health spending was on-CUT and 63 percent off-CUT*** (Table 1, p.13).

[8] Out of pocket payments (OOP) are reported from the National Health Accounts and are based on an extrapolation of the OOP calculated from the household survey, IOF 2008-09.

[9] The most recent IOF survey for 2014 was not ready at the time of writing this report.

[10] Using average exchange rate for 2011-2015 from World Bank 2016: http://data.worldbank.org/indicator/PA.NUS.FCRF.

[11] The *Tribunal Administrativo* acts as an auditor general.

[12] Before 2011, a small part of *ProSaude* was off-CUT, see Table 1 but now all of it is on-CUT.

[13] Most of the off-CUT funding is off-budget but some of it may be recorded on-budget. This part appears on e-SISTAFE, is audited, and is helpful for planning though the spending decisions are not taken by the host country.

Figure 6. On/off budget and on/off-CUT classification of spending

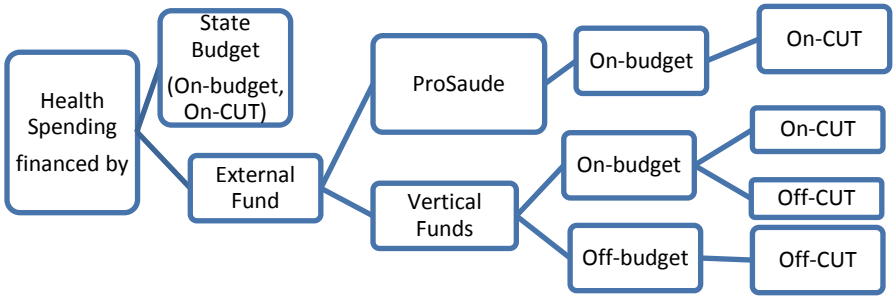


Table 1. Health spending in Mozambique

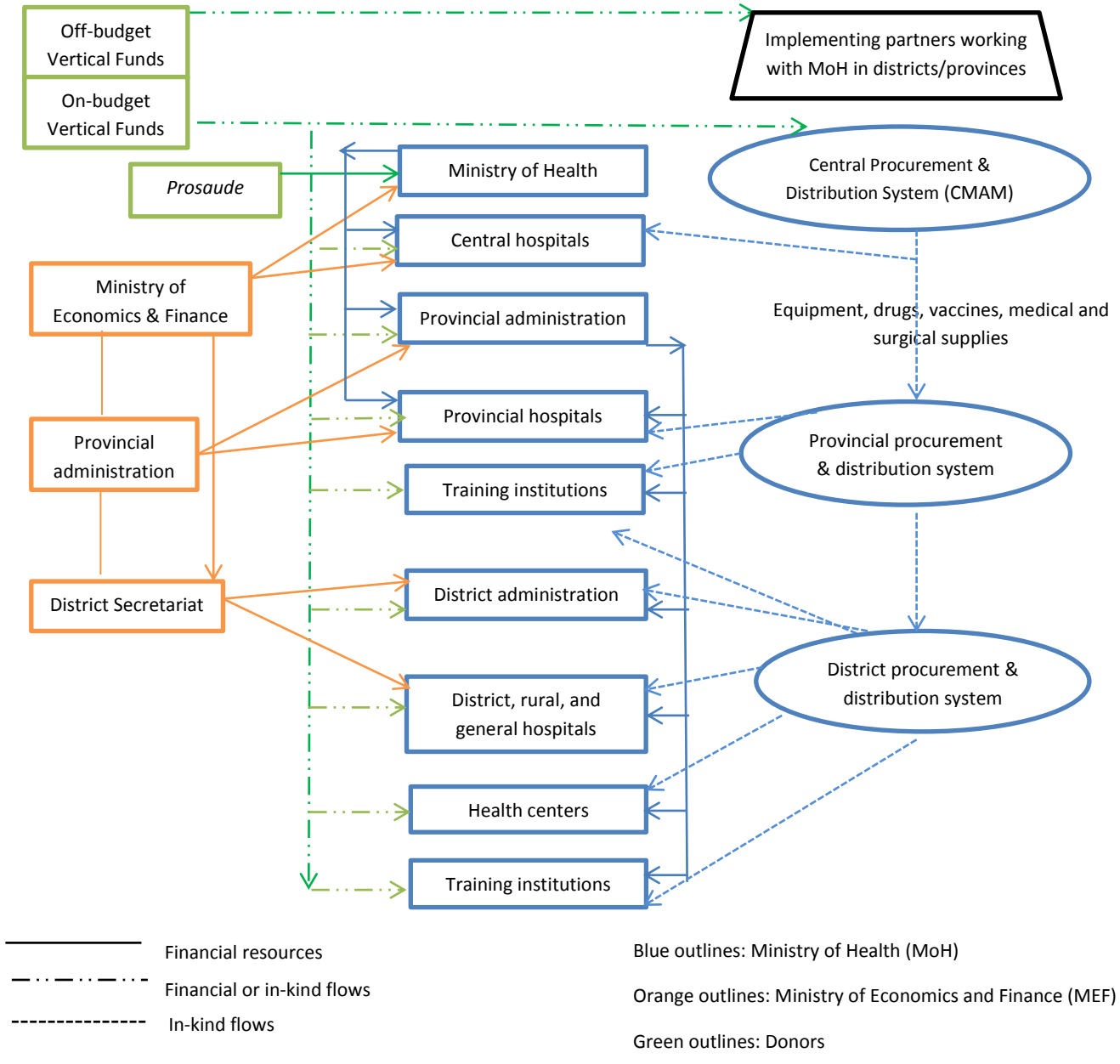
Unit: MT	2009	2010	2011	2012	2013
Health spending by type of account: on/off budget and on/off CUT					
On-budget health spending relative to total, all sectors					
On-budget, all sectors	79,128,788,992	103,037,001,728	122,000,662,528	137,262,006,272	167,603,638,000
On-budget, health	7,371,281,257	8,096,546,947	9,406,399,819	15,580,297,466	20,898,087,720
as % of total, all sectors	9%	8%	8%	11.4%	12.5%
as % of GDP	2.5%	2.3%	2.4%	3.7%	4.4%
On-CUT, all sectors	64,595,473,348	88,186,376,532	101,992,457,441	118,837,102,950	138,333,564,314
On-CUT, health	5,732,032,371	7,241,456,573	8,370,645,453	10,645,939,107	11,793,934,763
as % on-CUT, all sectors	8.9%	8.2%	8.2%	9.0%	8.5%
Off-budget spending	6,643,610,000	6,690,949,000	7,756,202,000	9,751,156,000	11,949,018,000
Total, on- and off- budget	14,014,891,257	14,787,495,947	17,162,601,819	25,331,453,466	32,847,105,720
% on-budget, on-CUT	*41%*	*49%*	*49%*	*42%*	*36%*
State Budget/OE	3,635,775,404	4,723,000,891	5,220,010,257	7,451,919,179	9,218,820,918
	26%	32%	30%	29%	28%
External: Prosaude	1,958,654,879	2,470,177,171	3,079,472,970	2,829,791,988	2,298,249,850
	14%	17%	18%	11%	7%
External: Vertical Funds	137,602,088	48,278,511	71,162,226	364,227,940	276,863,996
	1%	0.3%	0.4%	1%	1%
% on-budget, off-CUT	*12%*	*6%*	*6%*	*19%*	*28%*
External: Prosaude	248,750,203	473,000,000	0	0	0
	15%	55%	0%	0%	0%
External: Vertical Funds	1,390,498,683	382,090,374	1,035,754,366	4,934,358,359	9,104,152,956
	85%	45%	100%	100%	100%
% Off-budget, off-CUT	*47%*	*45%*	*45%*	*38%*	*34%*
Vertical Funds	6,643,610,000	6,690,949,000	7,756,202,000	9,751,156,000	11,949,018,000
% on-CUT	*41%*	*49%*	*49%*	*42%*	*36%*
% off-CUT	*59%*	*51%*	*51%*	*58%*	*62%*
Health spending by source of finance[c]					
State Budget/OE	3,635,775,404	4,723,000,891	5,220,010,257	7,451,919,179	9,218,820,918
	26%	32%	30%	28%	29%
External: Prosaude	2,207,405,082	2,943,177,171	3,079,472,970	2,829,791,988	2,298,249,850
	16%	20%	18%	11%	7%
External: Vertical Funds	8,171,710,771	7,121,317,885	8,863,118,592	15,049,742,299	20,484,234,952
	58%	48%	52%	56%	64%
Total	14,014,891,257	14,787,495,947	17,162,601,819	25,331,453,466	32,847,105,720

[a]On-budget spending is audited and recorded in the Ministry of Economics and Finance accounts, e-SISTAFE; spending not recorded here is off-budget. On-CUT is budget spending that flows through the treasury account, *Conta-Unico do Tesouro* (CUT). Off-treasury flows are referred to as off-CUT. [b]*ProSaude* is the health sector common fund or a pooled funding mechanism where a number of cooperation (country) partners agree to fund the health sector as a part of the Sector Wide Approach (SWaP). [c] Out of pocket payments from the National Health Accounts (NHA, WHO 2015) are estimated at 1.3 b MT or 5% of the all spending. NHA also reports private expenditure from insurance prepayments. We do not include these here as the NHA states this was based on a survey with very few responses.

2.3. Flow of funds

16. Budget allocations flow from the Ministry of Economics and Finance (MEF) at the central level to MoH and through MEF provincial and district representatives to the different levels of care at the provincial and district levels, including the central, provincial, district, rural and general hospitals and health centres. *ProSaude* resources are allocated by MoH across the different provincial directorates (DPS). Provincial hospitals and the districts then get their allocations from the DPS. MoH also redirects some funds to the provinces and districts and to CMAM for purchasing drugs and medical equipment. Further flow of funds to different levels is marked in the right panel in Figure 7. These are in accordance with limits set in the budget. In addition, some external funding flows directly from donors to MoH, CMAM, and to various levels of care. The off-CUT donor funding flows to intended beneficiaries through implementing partners such as NGOs. These organisations work at the district and provincial levels and provide technical, logistic, and advisory support.

Figure 7. Flow of funds in the Mozambican health sector



Source: Updated using Lindelöw et al. 2004

3. Data and limitations

17. **The analysis uses three datasets**. The expenditure analysis uses:

(a) e-SISTAFE data containing all on-budget Government and donor expenditure. These data have been used to build a data tool referred to as **BOOST,** which we employ in the analysis conducted here (World Bank 2014b,c);[14] and

(b) MoH survey data, *Inquerito dos Fundos Externos* (IFE) (MoH 2015a) for all off-budget health expenditure data.

Finally, for the Benefit Incidence Analysis (BIA), we use

(c) *Inquérito sobre o Orçamento Familiar* (IOF), 2008-09, the household survey data.

Since the IFE data are not linked to e-SISTAFE, we merged the two datasets to conduct the expenditure analysis. Appendix A1.1 and A1.2 gives a brief description of the variables used from these datasets.

18. **We re-classified the e-SISTAFE expenditure data to unpack non-specific spending** (40 percent in 2013) under functional categorization (see Appendix A1.3). On closer scrutiny, a large number of programs (for all years) marked here fall under a specific program, often disease-related. We, therefore, re-classified such expenditure into a new variable to incorporate this information. We also re-assigned the categorisation into the four different levels of care. The old classification included the categories: medicines, general hospitals, specialised hospitals, public health, and non-specific. The new classification constitutes: levels of care, infrastructure development, institutional and administrative support, medicines and related expenses, and disease-specific expenses. This ex-post classification was made using administrative codes and a detailed examination of the program names and codes and was also discussed with MoH officials. We applied the classification to the IFE data as well.

19. **The main limitations of the above datasets relate to:** (a) Ex-post re-classification of non-specific spending: Even though we have improved and strengthened the dataset for further analysis (by disease and for BIA) by reclassifying expenditure into levels of care and unpacking the non-specific category, it is important to remember these are ex-post classifications and will have some margin of error, even if small; (b) Inability to undertake provincial level disaggregation of donor disbursements: IFE reports a large part of the disbursement as central for such programs as combating malaria even when the funds are eventually disbursed to various provinces. Since this is done in consultation with MoH, the donors mark this part of the funding as being administered at the central level even if the benefits accrue at the provincial level, making it hard to understand the amount of resources flowing to provinces from external sources;[15] (c) Incomplete disease-level expenditure data: We cannot undertake a complete disease-wise analysis and see if improvements

[14] Further information on the BOOST initiative can be found on: http://wbi.worldbank.org/boost/boost-initiative and see the manual for details on the dataset (World Bank 2014d).

[15] This conclusion was based on discussions with MoH officials.

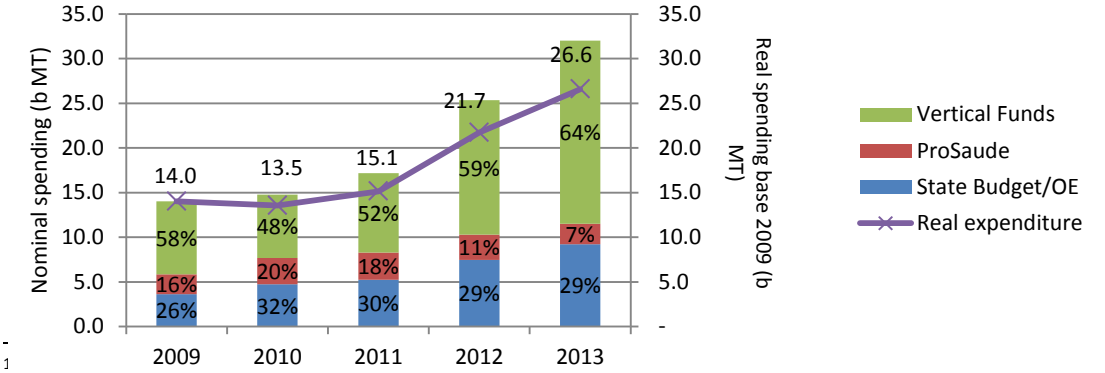
in outcomes are positively correlated with expenditures over the period since it is possible to know the spending on diseases as long as it is donor-funded. However, a substantial part of disease-level spending is incurred at the primary level for HIV/AIDS, TB, and malaria as well as maternal and child healthcare. At most we are able to assess how much was spent at the primary level using the functional classification discussed above with the disease-specific analysis itself confined to donor-funded projects; (d) Inability to identify expenses for district hospitals: It is not possible to identify expenditure marked to district hospitals, which fall under secondary care, as these are paid by the provincial directorates rather than at the district level.[16] This also affects the BIA since we are missing a chunk of expenditure likely leading to an underestimation of the benefit received by those respondents who were referred to a district hospital. (e) Lack of detail in the BIA: IOF collects data on whether a person, when sick, seeks treatment from a health center (or health post) or a hospital, among the publicly provided facilities (data on seeking private treatment from a doctor, a traditional healer, or a church are also available) rather than specifically the level of care they went to – specialised, central, provincial, district or general hospital. We, therefore, combine levels of care 2 to 4 to include hospitals and level of care 1 to correspond with health centers/health posts. We now discuss spending trends, focusing on Government and donor data. OOPs are discussed under BIA.[17]

4. Expenditure trends

4.1. Public spending by source, economic classification, and administrative units

20. **Public health spending in 2013 was 32 billion MT (1 billion USD), most of it externally financed and off-CUT.** Real health spending also shows a steep rise since 2011 (Figure 8). Most of the rise is fueled by vertical funds, 64 percent in 2013. Only one percent of these are on the treasury account, the rest are off-CUT (Table 1, p13). The *ProSaude* contribution has declined over the five year period by as much as nine percentage points settling at seven percent. As discussed in Box 1 this is because of the withdrawal of a number of partners from the fund (see Box 1). Together with vertical funds, the total donor aid contribution is nearly three-quarters. The state budget shows a small rise of three percentage points over the five years. Discussion with MoH revealed this was a conscious policy decision to gradually move to self-financing, though pushed by the declining *ProSaude* share.

Figure 8. Public health expenditure has risen in real terms fueled mainly by vertical financing

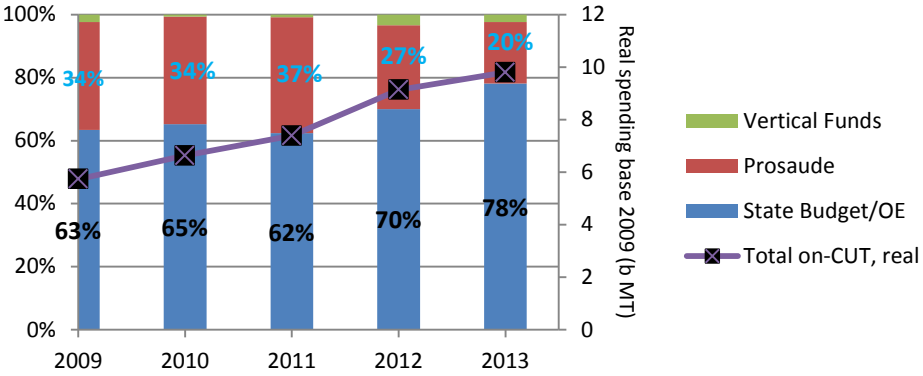


[16] According to MOH officials consulted, it is not possible to isolate these expenses.

[17] In the levels of care, we include only items that contribute to a service and do not include capacity building or training activities even if the money is being spent at a hospital (administration code in dataset is hospital). This is because the classification was done to inform the BIA.

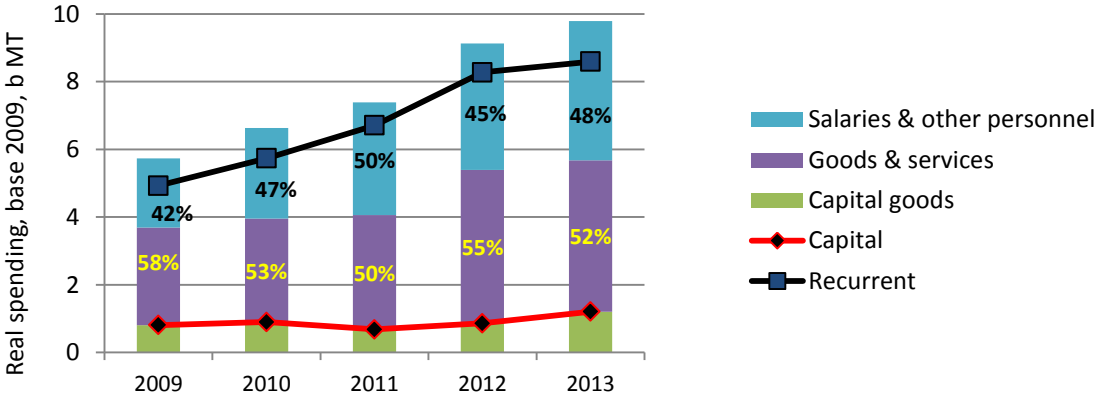
21. **On-CUT expenditure alone has also risen with an increase in the state budget share compensating for a declining *ProSaude* component (Figure 9)**. Real spending on the CUT account has risen from 5.7 billion MT to 11.7 billion MT (Table 1, p.13). However, health sector share in total on-CUT spending for all sectors has not shown a rise and has declined slightly from 8.9 percent in 2009 to 8.5 percent by 2013 (Table 1, p13). Off-CUT vertical support has risen substantially as we saw in Figure 8. The decline in *ProSaude* contribution seems to be compensated by a rise in the state budget.

Figure 9. On-CUT expenditure has also grown with a rising state budget share, relative to *ProSaude*.



22. **Recurrent expenditure[18] dominates total spending by economic composition and shows a steady rise over 2009-13 with an increase in salary share; capital shows a dip mid-period** (Figure 10). The decline in capital spending seen in 2011 made a recovery by 2013. An assessment of the data we use as well as a recent report on *ProSaude* (Timmermans 2015) seems to indicate that the fall mid-period is on account of a decision to reduce funding on infrastructure development though the intent is not clear. Salaries and other personnel expenses contributed 42 percent to total recurrent expenditure in 2009 and goods and services took 58 percent. By 2013, the salaries formed a relatively larger proportion at 48 percent and goods and services declined six percentage points. The increase in salaries was a result of hiring of new personnel as well as a rise in pay scales.

Figure 10. Recurrent spending dominates with salaries rising



[18] Recurrent expenses include spending on goods & services and salaries including other personnel expenses. Capital spending includes construction and purchase of machinery and other capital goods (Appendix A1.5).

23. **Most of the salaries and personnel costs are paid by the OE though *ProSaude* share peaked in 2012 at 20 percent from 12 percent in 2009, settling at 11 percent in 2013**.[19] Averaging over the five year period, about half of the *ProSaude* funded personnel expenses went to paying base salaries to new graduates hired by the NHS while the necessary paper work is completed to attain the status of a civil servant, on average 8 to 12 months. The temporary grant of contracts through use of *ProSaude* funds avoids loss of newly graduated personnel thus enabling improvement in health service delivery. The health sector faces the challenge of accommodating new graduates on top of the already existing pool of those waiting to become civil servants. The dependence on external sources of funding for absorbing new recruits translates erroneously as an inability of the sector to pay for its personnel through its own resources when this is a matter of administrative/bureaucratic inefficiency. In 2012, *ProSaude* financed base salaries accumulating to 504 million MT (seven percent of all personnel expenses) for such contracts, up from 135 million MT in 2009. In addition, it financed three percent of the other salaries and wages component or 122 million MT and eight percent of personal expenses (327 million MT). The last category includes expenses that cannot be classified under any other category. Subsidies given to staff contracted outside the NHS on top of their base salary as well as top-ups to salaries of senior staff fall under this category. Although hard to distinguish these in the e-SISTAFE/BOOST data, an independent audit by *Tribunal Administrativo* estimates top-ups of the order of 98 million MT (3.5 million USD) in 2012. It would be useful to include an absorption plan for personnel not paid by the state budget in the human resources for health plan to ensure the long term sustainability of personnel expenses (see Bonnet *et al*. 2015).[20]

24. **Administratively, there is evidence of increased deconcentration with share of district-level spending rising**. We refer to deconcentration as the transfer of administrative function from one level to another. In recent years, there has been a move in the responsibility of spending decisions from the central level to the provincial and district level. Provinces now have the power to make investment decisions for facilities at the primary level but need prior approval of MOH for such decisions for higher levels of care. The provincial directorates can also make recruitment decisions for staff at the basic, elementary and ancillary levels. For mid-level professionals and university staff, the province administration can propose a change with the final decision resting at the central level. Table 2 presents the shares of the central, provincial and district levels in expenditure. The central level contribution has fallen from 52 percent to 46 percent in the five year period. The most noticeable shift is the 10 percentage point increase in district expenditure from 2009 to 2013. While the provincial level was responsible for all salary payments for staff employed at the district level, there is increasing deconcentration in payments barring some districts that do not have the ability to access the e-SISTAFE system to enable salary transfers.

Table 2. Administrative composition and evidence of deconcentration.

	2009	2010	2011	2012	2013
Central	52%	50%	45%	48%	46%
Provincial	42%	42%	38%	37%	38%
District	6%	7%	16%	16%	16%

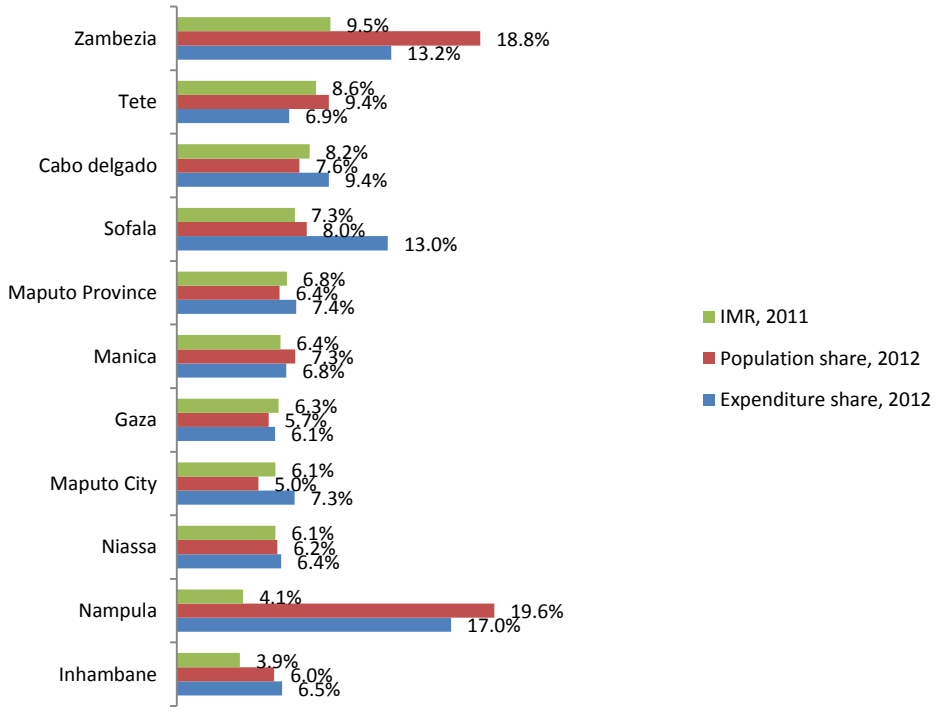
[19] In 2013, the vertical fund contributed a third to the personnel expenses, mostly drawn from the PEPFAR.

[20] Hiring would need to be restricted to health workers like nurses and nutritionists, not administrative staff.

4.2. Regional distribution of spending

25. **Spending distribution (on-CUT) across provinces is not always equitable**;[21] **Nampula and Zambezia reflect low spending share relative to population size**. Population size is foremost in importance when considering allocation of resources across provinces by need. Demographic composition and poverty indicators including infant mortality rates, can then be added on depending on data availability and quality (see, for example, McIntyre and Anselmi 2012). Criteria for resource allocation covers service units, number of beds, population, poverty, and population density, assigned a weight of 35, 25, 10, and 5 percent, respectively. This formula reflects a supply-side bias in giving a higher weight to service units and number of beds and gives a relatively lower weight to needs-based indicators including population and poverty. The Ministry of Health is in the process of considering a new resource allocation formula that takes into account population size as well as age and gender composition, infant mortality, and the inverse of population density to incorporate differences in service delivery costs between sparsely and densely populated areas. This would be a move from the previous formula that reflects health service supply rather than need (MoH and EQUINET 2012). Figure 11 presents a comparison of realized resource distribution with population shares and infant mortality rates (arranged in descending order with Zambezia at the top having the highest IMR in 2011).[22] The figure suggests that budget shares of Zambezia, Tete and Nampula would need to be revised upward. The difference is particularly striking for Zambezia with a population share of 19 percent, spending share of 13 percent and the highest IMR in the country.

Figure 11. Spending distribution across provinces compared with population and IMR



Note: Provinces are arranged from lowest IMR to highest

[21] It is not possible to disaggregate off-CUT spending by provinces. Therefore, this analysis reflects the Government plans and realizations without funding that bypasses the Government system.

[22] We present 2012 rather than 2013 because of its relative proximity to available estimates of poverty ratios and IMR. The analysis here is indicative.

Sofala spends five percentage points more than its population share, which could be attributed to the presence of a Central Hospital in the province. However, Nampula spends three percentage points less than its population size despite having a Central Hospital. Although Nampula has a lower IMR than Sofala, it had the second highest poverty head count rate in 2009 at 60 percent after Zambezia's 72 percent. Tete's poverty rate is also among the highest at 59 percent along with ranking third highest in IMR. Yet, Tete receives an expenditure share that is less than its population contribution (Alfani *et al* 2012; MDHS 2013). [23]

4.3. Budget execution rates

26. **Health sector budget execution rates are slightly above the overall average for all sectors**. The average on-CUT execution rate for 2009-13 is 90 percent and, on average, above that for all sectors combined. Table 3 (first row) presents the execution rates relative to initial budget appropriations and the revised budget. The execution rates are pulled downwards because of lower *ProSaude* execution, due to late disbursements and often amounts disbursed are less than commitments at the time of confirmation of the annual plan for the same financial year. Differences in initial and final execution rates indicate revisions in the budget. Over the period, the state budget had an upward revision by 13 percent for goods and services, which includes medicines. The budget was revised downwards by 20 percent for capital goods and five percent for personnel. The decline was compensated to a large extent by the upward revisions under *ProSaude*, a likely response to receipt of the full disbursement of *ProSaude* reflected in the mid-year revision (see Table 4).

Table 3. Budget execution rates by level of administration[a]

	2009		2010		2011		2012		2013	
	Initial	Final	Initial	Final	Initial	Final	Initial	Final	Initial	Final
Total, health	88%	91%	107%	87%	105%	94%	93%	90%	93%	91%
ProSaude		79%		73%		88%		71%		82%
State Budget		100%		99%		98%		99%		94%
All sectors		86%		86%		85%		90%		92%

a. Initial indicates execution rate with respect to initial appropriations: Final expenditure/Initial budget approved; Final execution rate is calculated as Final expenditure/Adjusted or Revised budget.

Table 4. Revisions to budget made by economic categories and source of funds, on-CUT

	2009		2010		2011		2012		2013		Avg. revisions[b]	
	OE	CF	OE	CF	OE	CF	OE	CF	OE	CF	OE	CF
Capital	-36%	67%	-29%	1540%	-27%	-25%	-15%	104%	7%	22%	-20%	342%
Goods & services	-11%	-5%	8%	31%	53%	9%	26%	9%	-11%	-1%	13%	9%
Personnel	-7%	9%	-4%	50%	-10%	290%	-20%	18%	18%	-9%	-5%	72%
	-11%	9%	-2%	76%	5%	24%	-3%	21%	4%	-3%	-1%	25%

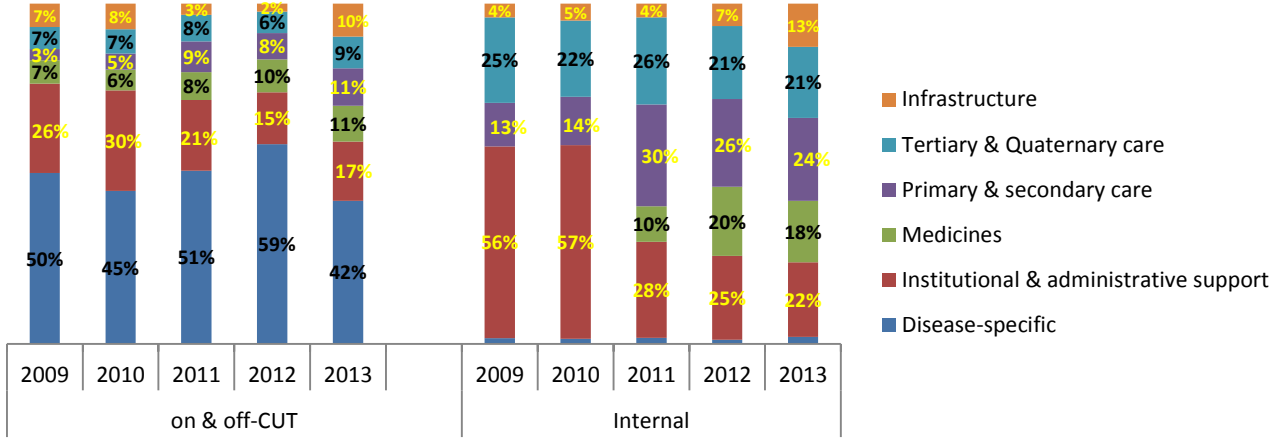
OE stands for *Orcamento Estado* or the State Budget and CF stands for the Common Fund or *ProSaude*; b. Average revisions are calculated for the time period 2009-13.

[23] Based on the latest poverty data available (IOF 2008-09).

4.4. Functional composition: what is being financed and by who

27. **Disease-specific spending dominates total on and off-CUT spending with a rise in the share of primary and secondary care.** Disease spending is dominant on the on and off-CUT accounts due to vertical financing marked for disease spending, varying between 42 to 59 percent of the total over the period (Figure 12). More than 90 percent of the disease expenses are vertically financed. Narrowing down to internal funding on the OE, spending on care facilities leads. However, as noted earlier on, internal funding does not identify spending by diseases but most disease-specific and preventive interventions, related in particular to maternal and child health, malaria, HIV, and TB are implemented mainly at the primary level of care. The vertical projects are also implemented using the existing infrastructure at the primary level. Narrowing down to internally financed spending, institutional and administrative support shows a noticeable decline halving from 56 percent to 28 percent from 2009 to 2012, seeming to make way for care facilities that dominate with as much as 45 percent of the total OE share by the end of the period. There is specifically a rise in basic care, in line with PESS priorities to support primary care linking it to the overall goal of poverty reduction. While in 2009 the primary and secondary levels (excluding rural hospitals) [24] constituted 13 percent of the state budget, by 2013 it rose to a quarter. Spending on tertiary and quaternary care has reduced from 25 percent to 21 percent. Nearly 70 percent of the spending on care facilities in 2013 was on personnel expenses with goods and services, excluding medicines, making up the rest.

Figure 12. Functional spending: on and off-CUT versus internal/OE



Note: Primary and secondary levels include health centers, district, and general hospitals. Tertiary and quaternary comprise provincial and central hospitals. 19 rural hospitals are mixed up with institutional and administrative support at the provincial level as they cannot be isolated from the other provincial directorate spending.

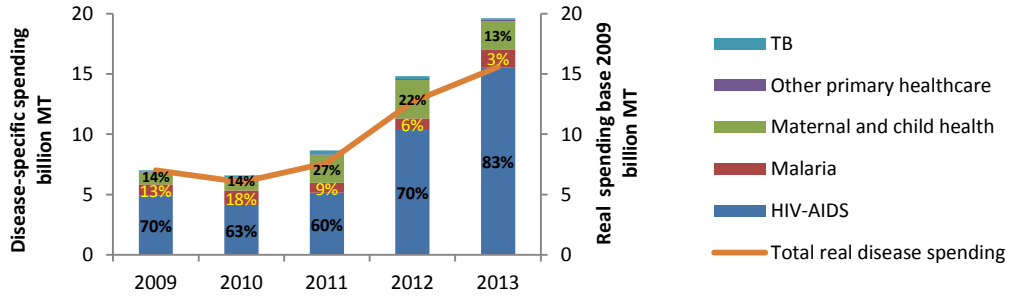
28. **Within external disease spending HIV/AIDS predominates**. Expenditure ear-marked for diseases under external funding has grown markedly in real terms from 2009 to 2013 (Figure 13, on- and off-budget combined). HIV/AIDS share is the largest and shows a distinct jump to more than three-quarters by 2013, largely because of increase in PEPFAR funds, which alone contributed about half of all the funding in this category.[25] Maternal and child health follows next with a 13 percent contribution in 2013. The real spending in this category has grown over 2009-2012 with a fall in

[24] As noted earlier on, this does not include 19 rural hospitals, so the contribution is likely higher.

[25] PEPFAR funding was approximately 262 million USD or 7.8 b MT in 2013 (USA.gov 2015). Total calculated from IFE and Boost data is 15.5 b MT.

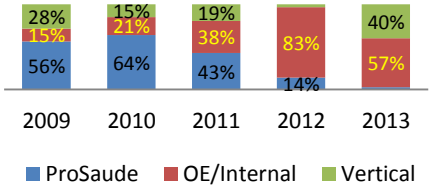
2013. Malaria spending has declined in real terms over the period and shows a three percent share in disease-specific spending by 2013, more than half of which is funded by PMI.[26] Tuberculosis spending remains low throughout the period, though this might be masked by possible overlaps with HIV/AIDS programs, in which case clarity in monetary distribution for tuberculosis specifically would be useful. Spending on other primary health care including non-communicable diseases and other infectious diseases is negligible. This includes neglected tropical diseases including lymphatic filariasis and leprosy.

Figure 13. Externally financed disease-specific spending.



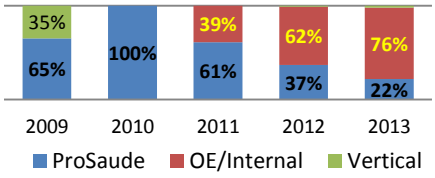
29. **There is a rise in infrastructure spending over the period increasingly financed internally.** Spending on infrastructure declined from seven percent to two percent over 2009-12 and recovered to settle at six percent in 2013 (Figure 14). At the beginning of the period, most of the infrastructure expenses were financed by *ProSaude*, but declined mid period as mentioned earlier, with the internal fund contributing more than three-quarters in 2012. By 2013, the OE contribution was 57 percent, nearly quadrupling from its 2009 share. The vertical fund settled at a share of 40 percent by 2013 from about a third in 2009.

Figure 14. Infrastructure funding



30. **Such a shift in spending patterns is more apparent for medicinal spending**. All of the medicinal spending was financed externally until 2011. However, in 2012 the contribution of internally financed spending was 39 percent and as much as three-quarters in 2013. (Figure 15), pushed by the withdrawal of several *ProSaude* partners (see Box 1). The increased spending on drugs being drawn from the internal fund is indicative of a move towards self-sufficiency in drugs. However, it is important to emphasize that this shift in priorities occurred by obligation due to a withdrawal of alternate sources of funding.

Figure 15. Medicinal funding



5. Spending, outcomes, and efficiency gains

31. This section discusses briefly trends in selected intermediate variables, essential for the achievement of lower mortality. While there are many determinants of outcomes including education, income, and institutional factors, we suggest possible efficiency improvements within the

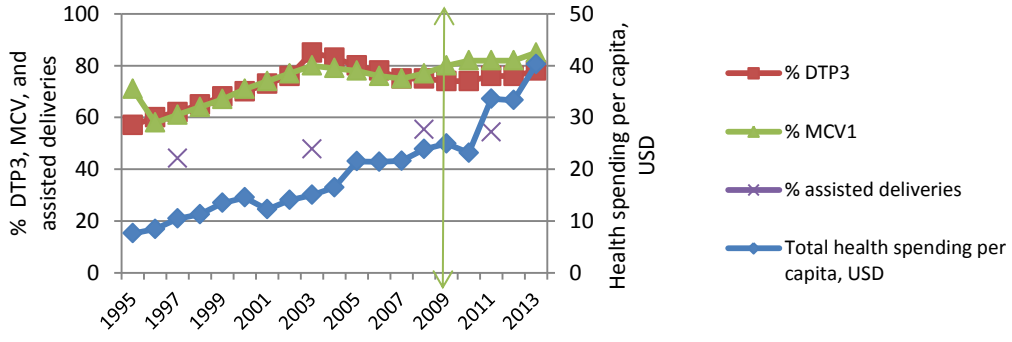
[26] PMI funding in 2013 was 29 million USD or 867 million MT (USAID 2015). Total funding using Boost and IFE is about 1.4 billion MT.

health sector as one way of improving outcomes. The objective being to attain improved outcomes by reducing costs without compromising health services. We compare Mozambique with other countries to indicate areas where Mozambique could have possible efficiency improvements. Since international comparisons do not control for the policy environment, among other factors, we narrow down our analysis to in-country provincial comparisons that control for such factors and provide an example of possible (allocative)[27] efficiency gains that could provide potential fiscal space. Chisholm and Evans (2010) report unsuitable and/or expensive staff mix, wasteful drug use, including reliance on brand names, over-use of equipment, and long inpatient admission stay as some of the reasons for overall inefficiency in the health systems.[28] We focus on health worker input into the system using workload per worker as a proxy for staff/labor input to examine possible sources of inefficiency at the provincial level.

5.1. Spending and outcomes

32. **Three critical intermediate outcomes underlying child and maternal mortality rates show improvement.** Figure 16 shows a rising trend in the third dose of Diphtheria, Pertussis, and Tetanus (DPT3) vaccine and the first dose of measles (MCV1) coverage. The arrow in the figure cuts off the data from 2009, where our reference period begins. There is a sharper rise in spending in this period, relative to the earlier periods, primarily because of increase in the vertical fund component, fueled by PEPFAR funding for HIV/AIDS. Vaccination rates do not show a commensurate growth since most of the rise in spending is ear-marked for HIV/AIDS. However, vaccinations show an upward trend with the dip in coverage after attaining a peak in 2004 showing a recovery over 2009-2012. Assisted deliveries have also risen since 1997. However, standing at a little less than 55 percent in 2012 there is a long way to go in achieving the 2015 MMR target of 228 per 100,000 relative to the 2011 achievement of 408 per 100,000 live births. There has been a marked improvement in ARV coverage from 49 percent to 84 percent from 2011 to 2013 among pregnant women and 18 to 32 percent otherwise. A more comprehensive indicator, such as the U5MR also exhibits positive change: in 2009 U5MR was 107.5 falling to 87.2 in 2013 (WHO 2014 and World Bank 2015a).

Figure 16. Total health spending and intermediate outcomes[a]



Source: UNICEF 2014 and HNPSTATS, World Bank 2015a.

[27] Two main types of efficiency can be distinguished: technical efficiency and allocative efficiency. The former involves using given inputs efficiently to produce the maximum possible output and the latter involves allocating inputs efficiently given prices, so as to maximize output. The provincial analysis examines allocative efficiency.

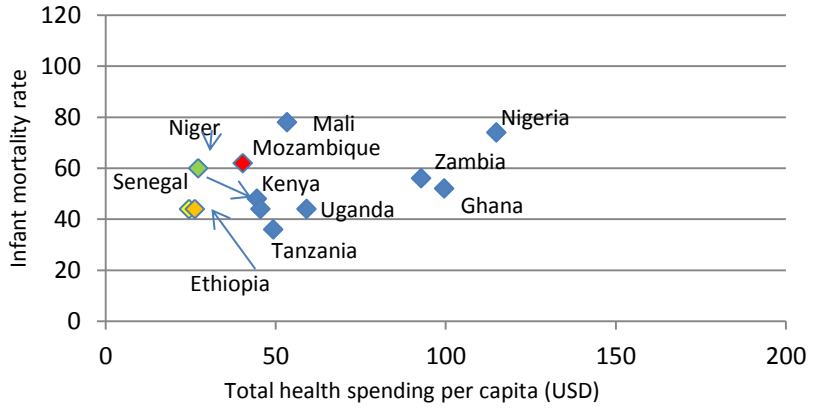
[28] It would be interesting to examine other sources of inefficiency in an extension of this work. We did not have the data available to undertake this analysis in the current study.

5.2. International comparisons to identify areas for potential efficiency gains

33. **Despite improvements in various indicators, Mozambique faces the difficult task of achieving better outcomes with limited resources**. While the country needs more resources to meet its financing gap of 53 USD per capita at 2012 prices, the available resources could be used more efficiently to achieve better outcomes. Cross-country comparisons give an idea of where Mozambique stands with respect to its peers and the potential efficiency gains thereof.

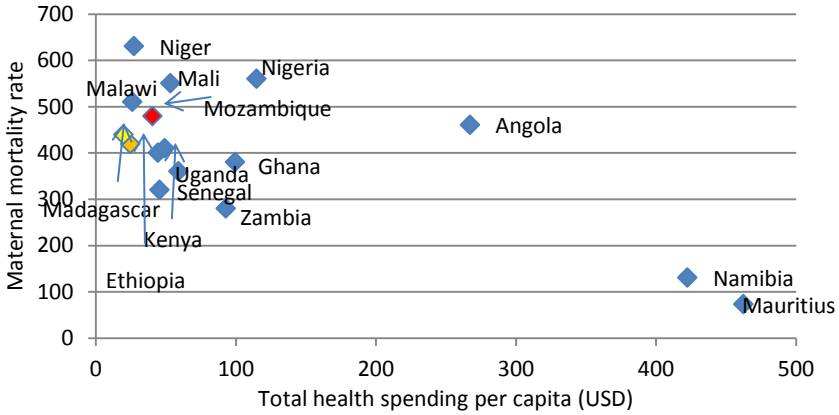
34. **Mozambique has higher IMR and MMR for higher spending per capita, relative to its peers.** Ethiopia achieves a lower IMR than Mozambique spending less per capita (Figure 17). Similarly, Niger spent 27.2 and Mozambique spent 40.3 USD per capita, with similar IMRs at 60 and 62 per 1000 live births, respectively. Likewise, Ethiopia has a lower MMR relative to Mozambique (Figure 18) even though it spends less per capita. These observations indicate the possibility of potential efficiency gains in delivering maternal and child health care in Mozambique.

Figure 17. Infant mortality rate and total health spending per capita



Source: WHO 2014 and World Bank 2015a; All data points refer to 2010.

Figure 18. Maternal mortality rate and total health spending per capita

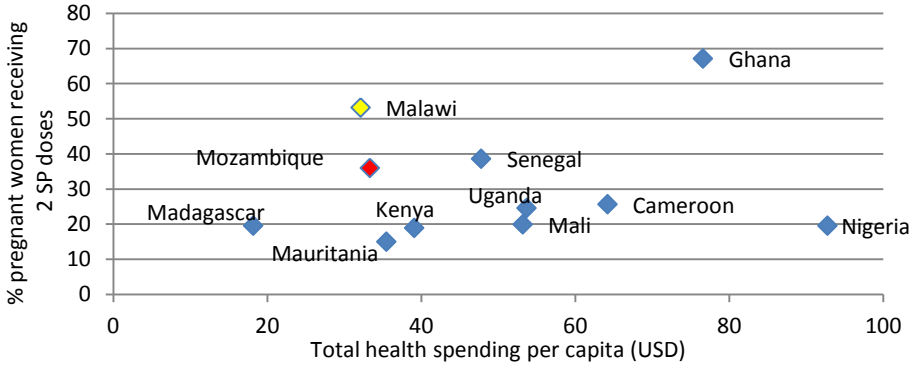


Source: WHO 2014 and World Bank 2015a; All data points refer to 2013.

35. **Intermediate indicators echo these results with reference to malaria prophylaxis for pregnant women and vaccinations.** Malawi is more efficient than Mozambique in administering malaria prophylaxis to pregnant women (two doses of SP (Sulfadoxine-Pyrimethamine) or Fansidar). While Mozambique spends 33 USD per capita on health, Malawi spends 32 USD per capita to

achieve a far higher outcome of 53 percent relative to Mozambique's 36 percent (Figure 19). Like Mozambique, it benefits from funding from the President's Malaria Initiative, which spent 24.6 million USD on Malawi and 30 million USD on Mozambique in 2012. Malaria deaths in Malawi are in a similar range, at 64 per 100,000, compared to 70 for Mozambique (USAID and CDC 2015).[29] The per capita spending on health is also similar as mentioned. However, it costs less to deliver health services in Mozambique (health per capita spending in PPP is 58 USD compared to Malawi's 91 USD per capita), which should make it less costly to deliver this service. Understanding impediments to achieving higher rates at current costs could result in substantial efficiency gains for Mozambique.

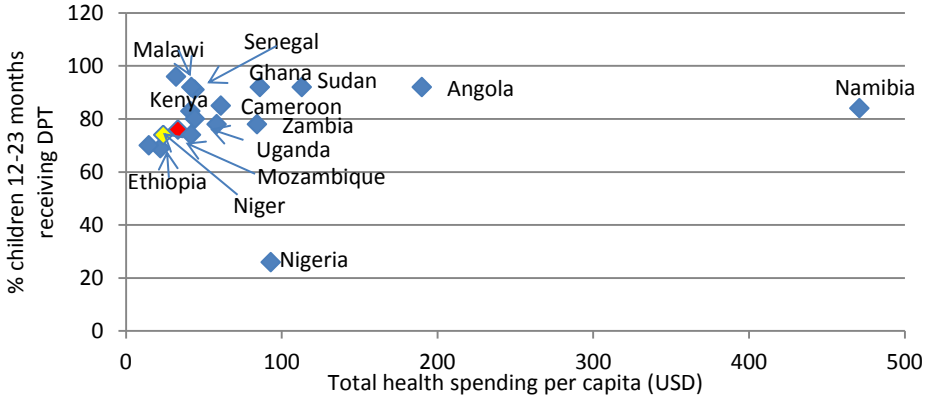
Figure 19. Malaria prophylaxis for pregnant women versus total health spending per capita



Source: WHO 2014 and World Bank 2015a; All data refers to 2011, except Malawi (2012) and Mali (2013).

36. Likewise cost of **DPT vaccinations** (percentage children 12 to 23 months old receiving the vaccination) in Niger is less than Mozambique at 23.9 USD per capita to attain almost the same DPT coverage rate of 74 percent, relative to Mozambique's 76 percent at 33 USD per capita (Figure 20). These examples highlight a potential for efficiency gains.

Figure 20. DPT vaccination coverage and total health spending per capita



Source: WHO 2014 and World Bank 2015a; All data points refer to 2010.

37. **The role of community health workers (CHWs) might explain to an extent the achievement of better outcomes with lower costs**. Countries discussed above have a commitment towards using CHWs to improve outreach especially in remote areas (see Box 2).

[29] PMI program covers provision of insecticide treated mosquito nets, indoor residual spraying, and intermittent preventive treatment for malaria in pregnant women with SP and use of Artemisinin-based combination therapies.

Box 2. Role of Community Health workers (CHWs) in cost-effective health improvements

CHWs have received renewed focus since 2000 especially in view of the shortage of health resources faced by many countries. With their low cost services relative to standard care, CHWs can provide cost-effective basic preventive and curative care in low income settings. A recent study of literature finds evidence to support this claim for tuberculosis as well as maternal and child health care and malaria. In Honduras, for example, CHWs costed 11 percent of what it would have costed in a facility to perform growth monitoring of children under two. Similarly, home-based management of uncomplicated malaria by a CHW was found to be 36 percent more cost-effective than care incurred at a heath facility (Vaughan *et al*., 2015). Ethiopia slashed its under five mortality rate from 204 per 1000 live births to 68 per 1000 in 2012, three years ahead of the target date set. Among other reasons, one significant factor for success is attributed to its Health Extension Programme employing as many as 38,000 health workers to 15,000 health posts (UNICEF 2013). Niger, with an already long history of village extension workers dating back to 1963, constructed 2,000 community health posts in 2000 with trained CHWs increasing access to health services to one facility per 5,000 people in rural areas. Malawi is scaling up its already well-established CHW program, integrated into the health system, to extend both the number and the type of services CHWs can provide. Rapid diagnostic testing for malaria is one such extended service (Advancing Partners and Communities, 2014).

Mozambique was among the early adaptors of CHWs or *Agentes Polivalentes Elementares* or APEs (multiuse elementary agents) dating back to 1978. The intent was to reach out to rural areas. However, the program terminated due to the civil war and is only recently in the process of being revitalized. The APEs cover an area of 500 to 2000 people. The MOH is training new recruits and re-training the older ones in implementing a basic package of health promotion at the community level and some curative treatments, including pre-referral malaria, diarrhea, and family planning interventions. Nearly 3,000 new APEs were trained to date throughout the country, indicating a new impetus for the program, though not on the scale discussed above for other countries. The funding for the program is provided externally without a plan for future funding (see USAID 2013). Government investment in the APE program promises to have high social and economic returns given the evidence above on the cost-effectiveness of CHWs in improving health outcomes but such an investment is yet to be materialized at scale.

38. **We present an example of potential efficiency gains through assisted deliveries alone at the provincial level.** The x-axis in Figure 21a and 21b represents cost per workload unit in MT. We use workload per health worker or *Unidades Atendimentos por technico*[30] as a measure of service delivery. We plot this on the y-axis in Figure 21c and d.[31] We employ percentage assisted deliveries (y-axis Figure 21 a,b), a critical intermediate outcome variable necessary to reduce MMR, to assess differences in outcome and cost across provinces; intermediate variables are more directly connected to workload measures.

39. **Comparing Sofala and neighboring Manica, percentage of assisted births are slightly lower in Sofala, yet Sofala spends more per workload unit as compared to Manica** (Figure 21a). The difference in cost is 10.63 MT. At the same cost per unit as Manica, the efficiency gain for Sofala

[30] Workload is calculated as the time taken to complete a particular activity or service, such as an assisted birth. The workload is, therefore, calculated by facility on the basis of the amount of activity it receives in terms of, for example, the number assisted deliveries, number of outpatients, and other such variables. The totals by facility are then aggregated across provinces or districts to get province/district level estimates (WHO 2010, MoH 2014b).

[31] To estimate the cost per workload unit, we divide the total on-CUT personnel expenses (both technical and administrative) by the total workload for each province. We use only on-CUT personnel expenses because we do not have salary or personnel expenses data for the off-budget component. Moreover, the vertical programs are mostly delivered through the existing health systems, particularly in view of the emphasis on having a diagonal approach to delivering health services. This is particularly the case for assisted deliveries.

would be 99,887,623 MT obtained as the total workload in Sofala (represented on the y-axis in Figure 21c) times the unit cost difference of 10.63 MT. As we can see from Figure 21c, Sofala also has a low workload per health worker that falls below the Ministry of Health's stipulated minimum of 5000 workload units per worker. This is being delivered at a higher cost than Manica. Thus, Sofala is producing a lower intermediate outcome, measured in terms of assisted deliveries, with a lower workload yet higher costs. This could be attributed to the higher allocation of resources in Sofala, as explained further below.

40. **Cost of delivering services in Zambezia is similar to Nampula but assisted delivery rate is lower.** Nampula and Zambezia have the largest population shares in the country. Nampula also has a Central Hospital. The unit cost of delivering services is slightly lower by 0.38 MT in Nampula compared to Zambezia. But Zambezia has lower achievements, with 26.4 percent assisted deliveries relative to Nampula's 55.3 percent. Nampula would have had to spend 16.80 MT per workload unit to achieve Zambezia's level, implying a per unit efficiency gain of 18.39 MT for Zambezia, if it were operating at similar efficiency levels as Nampula, a total gain of 227,595,873 MT.

41. **Finally, we compare Niassa and Cabo Delgado, the northern most provinces of the country**. Cabo Delgado constitutes 7.6 percent of the Mozambican population and Niassa 6.2 percent. For achieving an assisted delivery rate of 60.5 percent, Niassa spends 43.53 MT per workload unit. If Cabo Delgado were to achieve its current rate at Niassa's costs, it would have an efficiency gain of 21.37 MT per workload unit, translating into 154.4 million MT. The relatively low costs in Niassa compared to Cabo Delgado are even more striking given that Niassa is sparsely populated and it is in principle more expensive to deliver services in such areas. The population density of Niassa is 17 per sq. km compared to Cabo Delgado's 23.

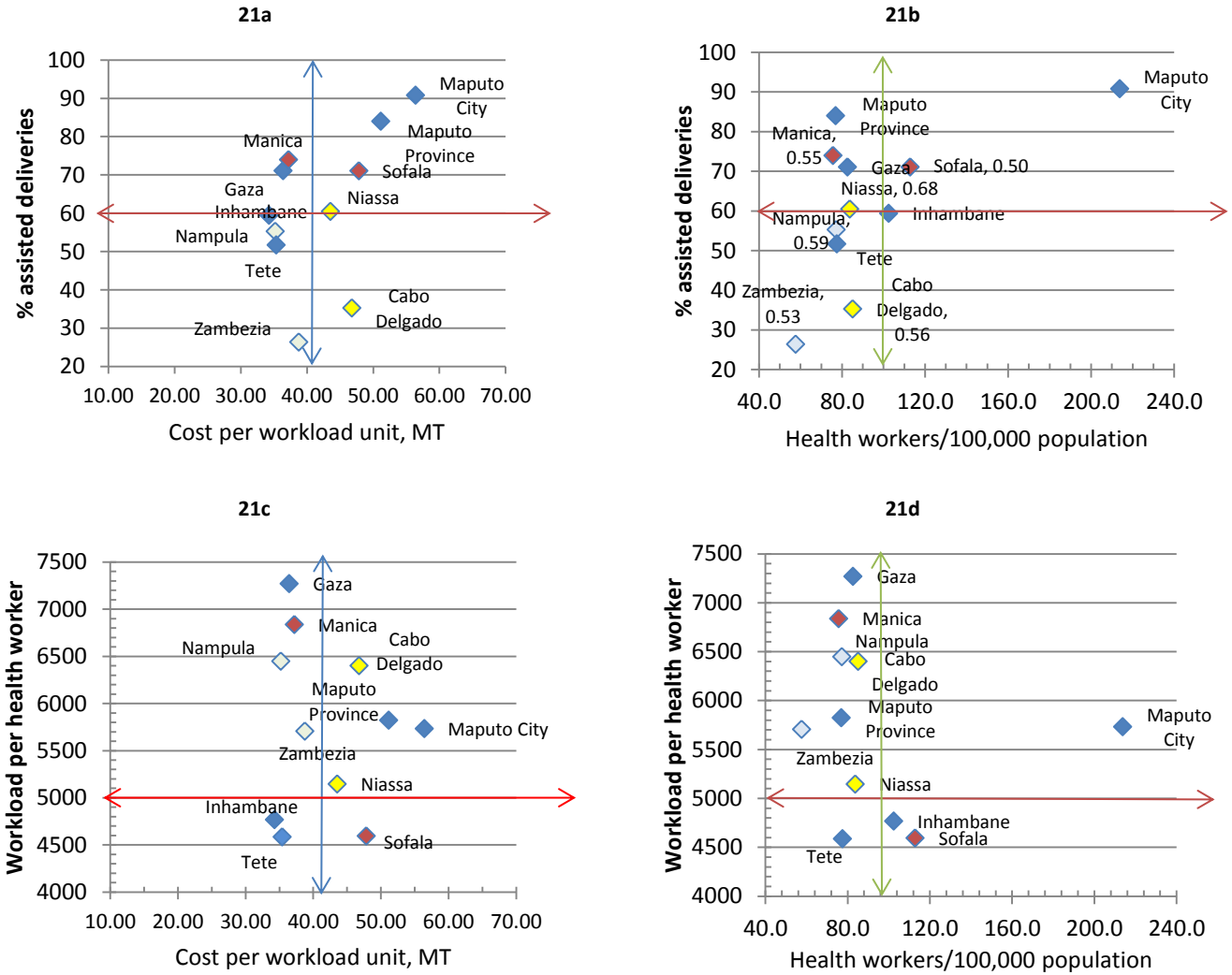
42. **Total gains using the above example for assisted deliveries are 482 million MT from efficiency in providing assisted deliveries or 0.7 USD per capita** (using 2012 exchange rate of 28 USD per capita from WDI 2015). Assuming similar gains for at least five other intermediate variables including malaria prophylaxis for pregnant women, completed DPT immunization, percentage children receiving measles vaccination, we could expect a potential gain of approximately four USD per capita, which is seven percent in efficiency gains that could finance a part of the 53 USD per capita financing gap. Such gains could be achieved through improving other sources of inefficency

5.4. Possible sources of inefficiency

43. **A potential source of inefficiency, among other factors, lies in unequal workloads across provinces.**[32] Sofala has a low workload per professional, below the stipulated 5000 workload units per worker (MoH 2014b) for a high unit cost, whereas Nampula and Zambezia serve above average workloads (Figure 21c).

[32] While we focus here on unequal workloads as a source of inefficiency, it is important to bear in mind that there are many other possible sources of inefficiency, such as medicine wastage through expiry and staff absenteeism and in general, sub-optimal public financial management practices, which we have not been able to analyze due to data constraints.

Figure 21. Efficiency gains in assisted deliveries and potential sources of inefficiency[a]



a. Numbers in 20b next to province labels indicate proportion of technical to administrative staff.

Source: Based on data from MoH 2014b, MoH 2015, and MoH 2014c and e-SISTAFE/BOOST.

A possible reallocation of human resources could redress this imbalance and also address potential quality compromises; provinces that are overloaded relative to the minimum workload per worker might struggle with delivering quality services, which is also one of the priorities outlined in PESS.

44. **At the same time, the distribution of health spending needs to be realigned to reflect population size**. As discussed earlier on, a number of provinces get a larger share of the health budget relative to their population size, such as Sofala, and Cabo Delgado, translating into high delivery costs (see Figure 11, p.19).

45. **A lower percentage of technical workers as compared to administrative workers may also contribute to lower outcomes.** While Sofala exhibits a high worker to population ratio corresponding with a low workload (Figure 21d), assisted deliveries are lower than Manica (Figure 21b). Looking at this more closely, we find that the proportion of technical workers are lower in Sofala at 0.50 relative to Manica at 0.55 (Figure 21b). While Cabo Delgado and Niassa have similar worker to population ratios, the outcome for percentage assisted deliveries in Niassa is better and the skill mix in the latter is favored towards technical workers: 0.68 relative to Cabo Delgado's 0.56.

46. **The finding on possible imbalances in technical and administrative ratios indicates a need for careful planning of workforce composition.** This concern is particularly relevant in the face of planned and current workforce increases. There has been a 27 percent increase in staff from 33,122 in 2009 to 41,948 in 2013. These increases are a result of attempts to improve health worker/population ratio which remains low. A number of new training institutions including pre-service training for different health professionals have been opened in recent years whereas until 2003, Universidade Eduardo Mondlane in Maputo was the main training institution, restricted to producing doctors (MoH 2013b). However, any increases in staff across provinces must take account of the composition needed at the facility level and redress imbalances. For example, the 'other' category under non-medical (*regime geral*) staff has seen a 30 fold rise from 2009 to 2012[33] and within this category, the elementary level of staff has the maximum increase, accounting for 90 percent of the surge (MoH 2015). We want to emphasize, however, that some increases in non-medical staff are necessary. For example, personnel under 'Planning and Statistics' have grown four fold over 2009 to 2012,[34] more modestly than the other category. Within this rise, the superior category accounts for the highest share (93 percent). This is a move in a positive direction as the expertise of such staff is necessary for enabling better planning and management to contribute to health systems strengthening, regarded as an overarching priority to enable the achievement of MDGs. At the same time, an appropriate balance in mix of staff is required to promote efficiency (Sherr *et al* 2013, Singh, 2006).

[33] There were 68 workers in the 'Other' category in 2009 and rose to 965 by 2012 and further to 1,089 by 2014. Within others, the elementary category includes such workers as attendants, drivers, chefs, and register keepers, the category that has grown the most.

[34] In 2009, this category had 32 workers and by 2012 as many as 148.

6. Benefit Incidence Analysis[35]

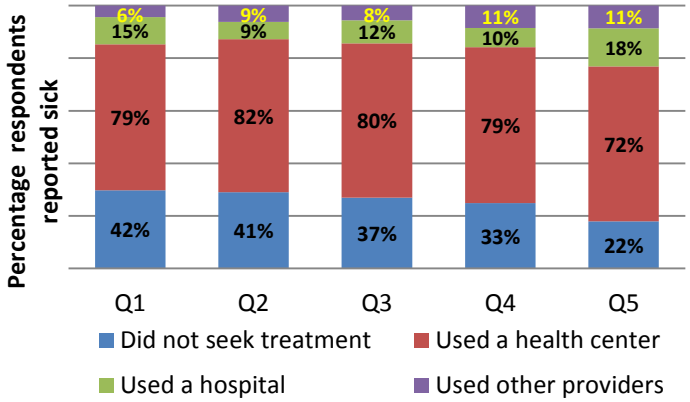
47. **The poor seek treatment less often than the relatively rich.** We find that the percentage of people who fall sick within each quintile is similar (Table 5). However, among those who fell sick,[36] the poor are less likely to seek care (Figure 22). In 2008-09,[37] 42 percent of the bottom quintile did not seek treatment when they were sick whereas only 22 percent chose not to consult a health provider among the users falling in the top quintile. We also observe that health centers are the main source of care sought across all quintiles, followed by hospitals.[38] The bottom and the upper most quintiles use the hospital services more than the middle quintiles.

Table 5. Percentage of people reporting sick in the last two weeks by quintile, 2008-09.

	Per capita consumption, MT	*Percentage sick*
Quintile 1	0.45-8.84	13%
Quintile 2	8.84-17.34	15%
Quintile 3	13.74-19.35	12%
Quintile 4	19.35-30.12	15%
Quintile 5	30.12-4744.84	14%

Source. World Bank Staff calculations using IOF 2008-09

Figure 22. Distribution of sick[a]



Source: World Bank Staff calculations from IOF, 2008-09 data.
[a]Top three panels represent a split of the sick who sought treatment, adding to 100%.

[35] For a brief description of data used see Appendix A1.4.

[36] The number of sick refers to those respondents who answered affirmatively to the survey question: Were you sick in the last two weeks? If sick, the respondent was asked if they sought treatment and if they answered yes, they were asked whether they went to a health post/health center, hospital, or other facility/service.

[37] More recent survey data were not available at the time of writing this report.

[38] Eight percent of the users seek care outside the NHS from traditional healers, churches, private clinics, and pharmacies.

48. Table 6 presents on-CUT health spending and total spending (off-CUT and on-CUT) by quintiles. About 60 percent of the total expenditure is from on-CUT source of funds. The share accruing to the different quintiles is similar in either case, though the amount reduces substantially when we consider on-CUT spending alone. Note that hospitals share is higher for on-CUT only; when including off-CUT the benefit to the health centers rises. This re-emphasizes the dependence of Mozambique on vertical donor funding.

Table 6. On-CUT and total (off-CUT and on-CUT) health spending by quintiles.

	Per capita consumption, (MT)	*Total on-CUT spending (MT)*	*All spending (MT)*	*Share, on-CUT*	*Share, all spending*
Quintile 1	0.45-8.84	1,095,507,499	1,813,104,582	18%	18%
Quintile 2	8.84-17.34	904,710,033	1,763,697,454	15%	17%
Quintile 3	13.74-19.35	994,491,105	1,765,697,668	17%	17%
Quintile 4	19.35-30.12	1,128,934,198	2,143,999,353	19%	21%
Quintile 5	30.12 & ab.	1,851,197,044	2,831,188,210	31%	27%
Total		5,974,839,878	10,317,687,267	100%	100%
Share of health centers		21%	53%		
Share of hospitals		79%	47%		

Source: World Bank Staff calculations from IOF 2008-09

49. **The richer quintiles get a larger share of both health center and hospital spending**. The Lorenz curve representation (Figure23) shows that spending on health centers is more equitable than that on hospitals. The bottom quintile gets 16 percent of the share of the total health center spending whereas the top two quintiles take 24 and 22 percent respectively (Figure 24). The distribution is more uneven for hospitals. The top quintile gets a third of the share in total spending. This share is high relative to the other middle quintiles. A possible reason could lie in the poor seeking treatment only when they are very sick and access hospital care directly rather than seeking care at the health center as a first resort. The well-off are able to access health services and seek care far more than the poor. Their being able to take advantage of the health system results in the larger share of the spending flowing to the upper quintiles. Impediments to seeking care can include

Figure 23. Lorenz curves for public spending utilization

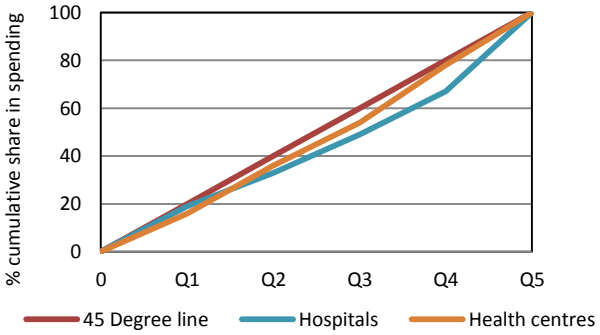
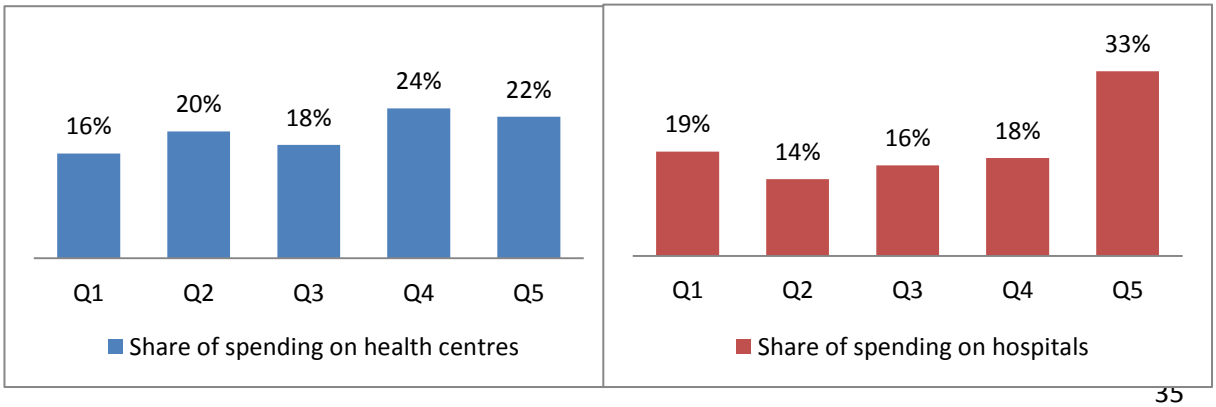


Figure 24. Share of health spending by quintiles



distance and inability to pay for indirect transport costs as well as unpredictable out of pocket payments such as for medicines when not available at the facility. A recent study on barriers to accessing health services in Mozambique covering Gaza and Zambezia province corroborates these general arguments (Schwitters 2015). Participants in the study were receptive to attending mobile clinics although they were apprehensive of waiting queues due to high patient loads. The findings are similar for Zambia, where Chatt and Rogers (2010) report that more than half of the respondents regard distance as a barrier and 20 percent lacked confidence that the facilities would be able to provide treatment due to medicinal shortages. There is a need to shift spending so as to target the poor through greater outreach activities such as mobile clinics. Such community-based interventions have the potential to benefit remote areas where the most vulnerable and the poor often reside. Such a focus is instrumental in improving outcomes (see, for example, Bidani and Ravallian 1997; Wagstaff 2003).

50. **Out of pocket payments (OOPs) form a small part of the total household spending**. In 2008-09, Quintile 1 households on average spent 0.4 percent (3 MT) of their average monthly expenditure on OOPs for health; as a percentage of non-food expenditure, the share was one percent. The middle quintiles spent 0.2 percent and the top most quintile share was 0.6 percent (48 MT). OOPs form five percent of the total health spending in Mozambique (see Table 1, p.13). Xu *et al*. (2005) observe that countries spending less than 15 percent of total health spending on OOPs, a very small number of households are likely to experience catastrophic payments. It is likely this has changed and in future work it will be useful to compare the 2008-09 IOF data against the forthcoming 2013-14 data. However, it is worth reflecting that the lack of evidence on catastrophic expenditures could also reflect limited access to services, as discussed. The poor may not seek care at all, by default choosing not to undertake a catastrophic expense or lacking the means to do so.

51. **Two caveats in this analysis need mention**. The expenditure data from Boost does not include expenditure on district hospitals as we cannot isolate this from the other expenditure incurred by the provincial directorates, who paid for district hospitals until 2015. This would mean an underestimation of expenditure on hospitals, possibly by a small percentage. Secondly, a large number of poor households are likely to be using primary and secondary care facilities more than tertiary and quaternary. Since secondary hospitals are lumped together with higher levels of care it is not possible to ascertain the usage and benefits accruing to the lower quintiles specifically through the use of secondary care.

7. Findings and recommendations

52. **What are the main findings?** There is a rise in the proportion spent on primary and secondary care levels over the period as well as a rise in the share of disease-specific spending by donors, dominated by HIV/AIDS, and a substantial increase in health staff, with growth in the superior component, indicating an emphasis on providing better quality of services. However, there are inequities in distribution of health spending as well as resource allocation across provinces. Top quintiles receive a large share of the health expenses primarily because they access services more when sick. Policies would need to provide increased focus on improving outreach to include a wider

scope of services covering both preventive care and clinical services. We also find that provincial spending is not always proportional to population size or poverty and IMR. Finally, there is a shift in financing of medicinal spending from external to internal funds, indicating increasing self reliance in financing medicinal expenses.

53. **Are the limited resources being spent efficiently?** Both cross-country and in-country provincial comparisons indicate potential for better use of resources. The provincial level efficiency analysis finds that efficiency gains could finance seven percent of the financing gap of 53 USD per capita to fund an essential services package. Two possible sources of inefficiency lie in inequitable resource allocation and composition of staff. The former could result in high costs of delivering services relative to outcomes. At the same time worker overload in provinces with low delivery costs could compromise quality, further reinforcing the importance of resource allocation to balance out workloads and realigning costs. As for composition mix, the staff make up is often skewed towards more administrative staff in provinces that have lower health worker to population ratio and could be contributing to inefficiencies. This finding needs to be supplemented with a more detailed study of staff mix at different health facilities and assess how imbalances could be redressed to attain higher efficiency. A country level Public Expenditure Tracking Survey (PETS) would be able to shed light on whether the human resources reported are also represented in the different facilities, thus identifying the gap between the official and actual staff allocations

54. **Is spending aligned to sector priorities?** A move in the direction of an increasing share of basic care resonates the PESS goal of focusing on primary health care as well as promoting equity over 2009-12. This move is aided by increased external spending on disease-specific programs and a shift towards decentralization, bringing spending decisions closer to beneficiaries at the primary level (see, for example, Sherr *et al*. 2013). These changes are a positive trend with promising economic returns in the future aside from short term goals of meeting MDG targets. However, maternal and child health will need more emphasis, as discussed next.

55. **Is maternal and child health receiving enough attention?** Maternal and child health (MCH) support is by far the most important component of success in achieving MDG goals relating to malnutrition, IMR, U5MR and MMR. The external financing of MCH programs has gone down while HIV/AIDS has risen. Primary and secondary care expenditure has risen and it is likely that these support MCH activities. However, we cannot ascertain this since spending on such programs cannot be isolated from the spending on care levels. It seems, though, that this component requires more funding since achievement falls short of targets, even if overall trends are improving. The importance of health system strengthening is particularly relevant in this context as delivery of maternal and child health care forms the backbone of the primary health care system. Many interventions and policies are underway, as discussed in the first section of this report, but a clear assessment of how these affect service delivery is lacking. A detailed examination of the link between policies and priorities, spending, health systems, delivery and outcomes would enable a better understanding of progress. For example, a recent Service Delivery Indicators (SDI) survey found that hospitals are better equipped with more knowledgeable health workers as compared to health centers (World Bank 2015b). Health centers are the foundation of primary care and within

that maternal and child health. This finding, therefore, has an important bearing on outcomes and would need to be explored further. Analyses such as this one would help identify other bottlenecks in the system likely to be hindering the full potential of reforms in enabling higher achievements.

56. **How can donor spending be used more strategically?** Reliance on donors, financing nearly two-thirds of the total health spending, raises doubts on the sustainability of external aid. This concern is not unusual for countries that have a heavy external funds component, Malawi and Madagascar being two other examples (Gaudin and Yazbeck 2014). While Mozambique needs donor financing given the large financing gap in terms of a package of essential services of 53 USD per capita, the country needs to be more strategic in its use of aid. Donor funds could be tied to specific one-time results based project financing aimed at improving outcomes rather than recurrent gap filling. The role of diagonal financing to strengthen health systems cannot be underemphasized here as an overarching priority in enabling the achievement of MDGs (see Singh 2006). As Sherr *et al* (2014) argue, weak district level management capacity impedes the decentralization process. Health system strengthening aiming on capacity building would help in translating resources into better delivery and outcomes. Some spending from the vertical funds is clearly ear-marked for such programs. On the other hand, at least a part of the *ProSaude* resources, more in the control of the Government, have been used for gap filling. As discussed, the salaries of health staff waiting to receive civil servant status have been funded by the *ProSaude*. This is a result of administrative inefficiency that diverts donor money from better uses and at the same time gives the signal that the health sector has the inability to pay for its current staff, making it harder to argue for much needed increases in budget for personnel expenses to finance further increments in staff numbers. Moreover, some part of the *ProSaude* has also been used to pay salary top-ups on the grounds that these help to retain skilled staff. But, like in Malawi's case, these are not likely to be sustainable and could create an increased fiscal burden in the future (Gaudin and Yazbeck 2014). At the least incentives should be linked to performance rather than being allocated as random top-ups. This would also contribute to efficiency gains in the sector. *ProSaude* and other partners could play a greater role in health system strengthening as well as monitoring and evaluation and reach agreements with the Government to conduct regular exercises such as PETS. Similarly, donors could focus on more innovative ways to finance eventually paving the way for the country to self-finance its health expenses. The Global Financing Facility (GFF) in support of *Every Woman Every Child* is a positive and innovative example in this context (see, for example, World Bank 2015c).

57. **How will Mozambique meet its financing gap?** The current sources of funds are not adequate to meet the financing gap of 53 USD per capita at 2012 prices. The country needs more health professionals and for that it needs more funds. The immediate response is to seek increased donor spending. But this has its disadvantages, as discussed. A possible cost-effective route that the MOH has already embarked on is to restructure and revitalize the community health workers program. The other source could be private funding. A mere eight percent of health users seek care outside the NHS. If the supply of alternative health providers who can provide good quality of service can increase, it would encourage people to seek care elsewhere helping to finance some of the gap and at the same time lowering the burden on the NHS that could focus on catering to the poorer quintiles. The Sierra Leone PER, for example, recommends seeking funding from such

providers as private firms, missions and NGOs (Gaudin and Yazbeck 2014). All these aspects would need to be discussed, assessed and included in the ongoing Health Financing Strategy for the country.

58. **What specific data improvements would enable better planning?** Given the heavy reliance on the external sector in funding health spending, it is important to connect the data collected on external sources to e-SISTAFE. There also needs to be one integrated system to collect external financing data. Currently there are ODAMoz and IFE. Maintenance of one system would enable better survey responses by donors rather than duplicating efforts. Moreover, the funding covered in ODAMoz for health is not complete. Even though available publicly through a website, these do not convey the full picture. Secondly, the data in IFE do not clearly indicate where the funds are directed, to which provinces and districts. A large part of the funds are marked under Central and include that part of the program spending which is discussed with MoH before disbursing the resources to different regions. This distorts the picture of how much external financing is received at the sub-national levels. In the e-SITAFE data, the 'other' category under economic classifications needs to be better explained as these contain a considerable proportion of expenses, which are not easily identifiable. The staff entering data at the health facility level could benefit from specific trainings to understand classifications and comprehend the importance of correct and specific entries. Such training would also be able to identify differences between health expenditure by functional classification. As noted earlier, a large part of the health expenditures under functional composition are marked not specific and our analysis worked on first unpacking this category. Similarly operational expenses need to be clearly marked for different care levels, another data cleaning exercise conducted in this work. These changes would enable a clear idea of funding distribution by levels of care and other types of function. The data analysis would also benefit from spending classification by both level of care and diseases in order to identify if a program like maternal and child health, for example, is getting enough coverage.

59. **In conclusion, Mozambique is moving in a positive direction with improvements in various outcomes and spending shifting towards sector priorities**. However, these would require a change in the health sector's strategic planning processes to reallocate resources to give an even greater weight to primary and secondary care, along with an emphasis on providing community based interventions to improve outreach. Mozambique's competent database system can be further improved to enable better planning. As a part of this, off-budget donor funding data management could be linked to e-SISTAFE. While increased financing is essential, improving efficiency is imperative. It would be worth exploring the possibility of results based financing with regular monitoring in order to target spending to improve efficiency. Resources would need to be allocated according to the needs of a province and target specific segments of the population with lower than average outcomes. The importance of improving and strengthening maternal and child health care, which is at the foundation of the primary care program, cannot be underscored enough. Not only would it be necessary to align increased spending here but also identify bottlenecks to improve service delivery, as also identified in the recent SDI survey. There is potential for high social and economic returns if used in conjunction with cost-effective interventions engaging CHWs or APEs (*Agentes Polivalentes Elementares*), along with the requisite supervision and technical support to

make the programs successful This PER comes at a time when a new health operation is being commenced. Our findings could be used in a timely way to help improve sector performance. Table 7 summarizes key findings and recommendations.

Table 7. Summary of findings, recommendations, and achievability time-frame

Findings	Recommendations	Achievability time frame	Feasibility/ Commitment/ plan
Aligning priorities			
Rise in primary and secondary care spending over the period.	Need further increase in spending on basic care; develop a mechanism to fix a statutory increase of basic care each time there is a rise in tertiary care allocation.	Short term, 1-2 years	Low to moderate
Maternal and child health, (including reproductive health and nutrition) not receiving as much attention.	Re-alignment of spending to focus on maternal and child health and nutrition within the primary health care system.	Short term 1-2 years	Low to moderate
Move towards self-reliance in medicinal spending.	Plan to move towards self reliance in medicinal spending rather than obligatory shifts due to withdrawal of donor funding.	Medium term 3-5 years	Moderate
Not all personnel expenses covered by the state budget	Have a clear plan to accommodate *Fora do Quadros* paid by *ProSaude* along with removing bureaucratic in-efficiencies hindering the process of hiring staff. Absorption plans to be reflected in the next cycle of human resource planning.	Short term to medium term, 1-5 years	High
Equity			
Inequity in resource allocation across provinces, with negative implications for efficiency and concomitantly, savings gains.	Resource allocation to be carefully planned to accommodate such parameters as population size, density, poverty, and IMR. Detailed analysis on provinces receiving high shares would need to be conducted to guide the process.	Short term to medium term, 1-5 years	Moderate
Access to health services skewed towards top income quintiles thus receiving a larger benefit from public spending,	Outreach needs to be improved to improve access for the bottom quintile of the population by taking the services closer to the communities. A strategic restructuring of the APEs/CHW program to incorporate these elements would go a long way in addressing inequities, at the same time ensuring that the program is sustainable and not dependent on donor funding. Linkage of CHWs to mobile clinics and the most basic primary care facilities would be essential for successful integrated delivery of basic care.	Medium term, 3-5 years	Low to moderate
Health financing to meet resource gap			
Strategic use of donor funds and phase out dependence on recurrent expenses.	Strategic planning with partners to use donor aid for health systems strengthening including capacity building and monitoring and evaluation, and help in the design of reforms focusing on sustainable health financing from domestic sources; enabling the formulation of innovative mechanisms to improve performance of health staff and other such aspects to improve system performance.	Medium term, 3-5 years	Moderate to high
Possible efficiency gains from using appropriate staff-mix.	Revise technical to administrative ratio across provinces especially where costs are high and service delivery is relatively low.	Medium term, 3-5 years	Moderate
Potential for efficiency improvements through cost-effective interventions like increasingly utilize community health workers, based on international experience.	Use of cost-effective service delivery mechanisms like CHWs/APEs and mobile clinics. Further restructuring and revitalization of CHWs/APE program to be accompanied with a plan for internal financing to make it sustainable.	Medium term, 5-10 years	Low to moderate

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Appendix

A1.1. Variables used from the e-SISTAFE/BOOST dataset 2009-13[39]

Type of expenditure: Whether expenditure is internal or external. Internal investment refers to any expenditure supported by the budget, further distinguished into investment and operating expenditures. All external funding is classified as external investment even if some of it may be used to pay salaries.

Funding source: Identifies whether the funds are raised internally or externally. As such it distinguishes between on-CUT and off-CUT funds and also identifies *ProSaude* separately. Vertical Funds on-budget can also be identified.

Administrative classification: Administrative levels at which the budget is finally executed. It, therefore, distinguishes between the central, provincial, and district level expenditures, along with disaggregated information by province and district, which corresponds with geographic location in case of the health sector. The classification also identifies codes for budget holders known as UGBs in the Government, which can help identify the level of care to which the expenditure is directed. The health sector UGBs include the Ministry of Health at the central level, the provincial directorates and the district secretariats; the central, provincial, general, and military hospitals; the National AIDS Council; and CMAM.

Economic classification: There are five levels of details available in the dataset for this variable. The broadest classification is in terms of whether the expenditure is recurrent or capital. The subsequent categorization elaborates if it is for salaries, goods and services,…TO BE COMPLETED.

Functional classification: Whether the expenditure is for medicines and medical equipment; general hospital services, specialized hospital services, public health, or if it is non-specific. The non-specific category includes such expenditure as institutional and administrative support, not used directly for health care services.

Program name and code: Program names and codes identify the functional nature of the spending along with whether it is for a particular disease in case of external funding. – whether where it is possible to classify expenditure into different categories.

Budget and expenditure: The data include amounts allocated to the Approved Budget (*Dotação inicial*), which is based on assumptions about expected revenues and expenditures; Adjusted budget (*Dotação actualizada*), revised to take account of changes in revenues where realisations are different from expectations, such as when donor disbursement falls short of or exceeds commitments or when new expenditures are needed and the budget allocated to a particular line item may be moved according to reprioritisation; and the executed budget or actual expenditure.

[39] For details on specific names of variables and further explanations, see World Bank 2014d.

A1.2. Variables from IFE data.

The IFE variables were matched and merged with the e-SISTAFE data corresponding to the period 2009 to 2013. The IFE dataset contains off-budget disbursement data by various donors. It also indicates the period for which each donor-funded project is operational. We cleaned the dataset to include only the years 2009 to 2013, even if a program extended beyond this period. The program names and codes correspond to those in the e-SISTAFE though additional information is available from the description variable. This helped us in identifying the provinces in which the programs were operational, where the province indicator had missing values. The data do not contain any information on economic classification of the funding, i.e., recurrent or capital expenditures; goods and services or salaries. Specifically, the variables used were donor names; disbursement/expenditure; program names and program description; on-off cut/on-off-budget, where we picked only off-budget information; codes and program names; administrative/geographic level, but this variable did not always identify the level clearly and we cleaned the variable in consultation with the person responsible for the IFE data at MoH. We also used the description variable to identify the correct levels at which the program was administered. A large number of programs also mark the administrative level as central. On cross-checking with MoH, it was clear that this was because many provincial disbursements are made in consultation with the central level and would eventually be marked for different provinces, such as for the malaria program. It was not possible to get further details on this information.

A1.3. Functional composition through re-classification of data to unpack non-specific spending.

We combine the on-budget e-SISTAFE data using BOOST as well as the off-budget data using IFE to create this new variable. We develop the categorizations based on program names and codes given in the data as well as the administrative codes. We choose program names over codes where there was a conflict between the two.[40] It may be noted that the disease-specific category is only applicable to external financing. On the on-CUT account, disease specific expenditure is ear-marked if it relates to external financing. For internal financing, such a disease classification is not available because any disease-related spending is incurred through services rendered at the different levels of care.

Levels of care: As explained earlier on, there are four types of care facilities in Mozambique. We club primary and secondary levels of care together and put tertiary and quaternary into one category. A disaggregate of each care level was also retained for further analysis. To recapitulate,

[40] We do not use the existing func2 variable in BOOST for this purpose as a large part of the expenditure is classified under an ambiguous health n.p. category. We unpack this category using program names into the classification we have now presented. The original variable does not allow us to understand disease-specific funding either. We identify disease spending using the program names and codes. However, we use the func2 variable to reassign operational expenses to different levels of care which is otherwise unclear from the program names alone and is recorded as a general operating expense.

primary level of care covers health centers and health posts, secondary covers rural, general, and district hospitals, the second line of referral for any issues diagnosed or identified at the primary level. Tertiary care comprises of provincial hospitals and quaternary level includes the central hospitals (see Section 2). The expenses here include operating costs, including salaries.

Medicinal and supporting spending covers purchase, transportation, and distribution of medicines and medicinal articles, unless specifically indicated for a particular program like malaria or AIDS, in which case it is included there.

Infrastructure development covers new construction and purchase of machinery and equipment to run the newly constructed facilities as well as rehabilitation work. When an infrastructural expense is incurred for a specific program, mainly in the case of maternal and child health, this is included under that program and not the general heading of infrastructure development.

Institutional and administrative support covers different kinds of expenditure including specific support to provincial directorates for improving the provision and delivery of health services in order to strengthen health systems. It also includes human resource development and training as well as any residual administrative expenditure that cannot be classified into other categories but is considered supportive expenditure.

Disease-specific expenditure includes support to specific programs to combat HIV/AIDS, malaria and tuberculosis and other infectious diseases; maternal and child health programs including nutrition programs; and other primary healthcare including spending on control and treatment of non-communicable diseases. It may be re-emphasized that while disease-specific classification is straightforward for external funding, given the way in which these are recorded under program names, this is not clear-cut for internal funding. Disease-specific expenses financed internally can be thought of as being primarily absorbed by basic health care services provided at the primary level of care in terms of, for example, staff attending to malaria cases or maternal and child health care.

A1.4. IOF data and assumptions on BIA.

The household survey data of the IOF provide us information on usage of facilities when a person is sick and seeks treatment by health center or health post, hospital, and other such facilities as a private clinic, pharmacy, private doctor, traditional healer, and church. We aggregate all spending at the primary level as that corresponding to health centers and health posts and classify spending on other levels of care under hospitals.

The BIA excludes spending on ongoing construction and rehabilitation and capacity building and training related costs on the logic that these would not contribute to providing a health service in the current year, although their input would enhance services in the future. We exclude medicinal expenses from the data as it is not possible to segregate expenditure on drugs, mainly KITS and *Via Classica* (see Section 2 that explains these packages). Instead, we obtained these data from CMAM and included KITS spending under primary care or health centers and *Via Classica* under hospitals.

We use spending data for 2010 to apply to access in 2009 since the CMAM data were not available for 2009. We assume that access would be unchanged in one year.

A1.5. Note on recurrent and capital expenditure

Recurrent expenses are mostly operational expenses necessary for the upkeep and maintenance of the health system, i.e, offices, health centers, and hospitals and include wages and salaries and all other personnel expenses including current transfers in the form of pensions, as well as spending on goods and services. The goods component includes expenses incurred on such items as fuels and lubricants, medicines including supporting devices and equipment, materials purchased for office use, equipment parts, and maintenance of machinery and other durable goods for office use. Service payments are composed of maintenance and repair of real estate, vehicles, and other such items, communications in general, transportation and cargo, expenses for movements within and outside the county, insurance, and the payment of water, electricity, and other services. It also constitutes such transfers as pensions, scholarships, and social assistance. The capital account covers investment spending such as on construction and purchase of machinery and equipment or modes of transport.