Role of Private Sector Providers in Malawi National Immunization Programme

Project Title

Strengthening country-level data on immunization financing and sustainability

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Executive Summary

Private sector providers, both for-profit and not-for-profit, offer immunization services in many low- and middle-income countries (LMICs). However, limited information exists on the proportion of immunization services and private expenditures taking place through the private sector. In order to learn more about the private sector's provision of vaccination service, Abt Associates is conducting a case study in Malawi on the role of the private sector in routine immunization provision.

The study team surveyed health providers at fifty-three private and eleven public facilities on their provision of immunization services in the three regions: Northern, Southern and Central. Of the total sample of private facilities, 60% were faith-based; 30% were private for-profit; and, 10 percent were NGOs. The private for-profit facilities are mainly (75%) clinics and hospitals, while FBOs are more likely to be health centers and hospitals (88%). The NGOs, on the other hand, include clinics, a dispensary, a health center, and a hospital. The team also conducted 310 exit interviews, five at each health facility in the sample.

The team used the sampling frame from the 2013 Private Sector Census of Abt's Strengthening of Health Outcomes through the Private Sector Project to select the facilities.

Results

The case study in Malawi revealed that the national immunization program is collaborating closely with the private sector to provide vaccination services. It has service-level agreements with private facilities, sends vaccinators to the private sector facilities to conduct immunization sessions, and supplies vaccines, injection supplies, and partial cold chain equipment while the private sector provides the venues, health personnel, and some of the cold chain and running costs. The approach is a type of contracting-in between the MoH and private facilities and appears to be an efficient way to increase access to immunization service delivery.

The District Health Officers (DHO) and EPI coordinators negotiate with private facilities to determine which providers are interested and qualified to provide vaccination. The private sector facilities selected for vaccination are supplied with vaccines, injection supplies, and registers. The District Health Office also sends vaccinators into the facilities to conduct the vaccination.

Some 27% of total vaccination in Malawi takes place at private facilities. The proportion of private sector vaccinations is greater than most other African countries such as Ethiopia (0.7%), Zimbabwe (0.05 – 3%), Morocco (5%), and Mauritania (10%) (Levin 2011). It is also greater than that of many Asian countries such as India (10 %+), Sri Lanka (15%), and Thailand (10%). However, it differs from other countries since it sends its own vaccinators into private facilities and has more quality control over the service delivery.

The majority of private sector vaccination in Malawi takes place at FBOs (93%) followed by private for-profit facilities (5%). NGOs have a smaller role in the immunization program with 2% of private vaccinations (0.5% of total vaccinations) taking place at their facilities.

The percent of private facilities that get cold chain equipment (40-88%) and running costs (25-69%) from the government varies, with the most support going towards FBOs and the least to NGOs.

Issues with service quality were observed: 1) some cold chain equipment were non-regulation (30%); 2) 26% of facilities had infrequent regulatory visits, 3) one fifth of private for-profits and NGOs had insufficient vaccine stock in their facilities; and 4) clients were dissatisfied with the waiting time at a few facilities.

In total, 23% of private providers reported that they are charging fees for immunization, most of which go towards paying for health passports, despite official policy to offer these at no charge. Some fourteen percent of exit interview respondents reported paying fees for immunization. They were most likely to pay for vaccination cards (8%) but a few also paid for vaccination services (4%) and vaccines (3%) in some facilities.

The Malawi government does not regulate fees that private facilities or providers charge for vaccinations and allows private facilities to determine what nominal 'service fees' that are charged. However, these fees may be a deterrent to the utilization of vaccination, particularly for the pool.

The study team estimated that total private expenditures in 2017 are 90.2 million MWK, or $124,449. These client expenditures are a small percentage of total expenditures on health – 0.02%. This finding indicates that private expenditures are not large. However, the ones that exist may be a deterrent to using services in locations where public facilities are not accessible.

A few limitations of the study should be noted. Some expenditures may have been omitted due to lack of information on purchases of cold chain by facilities or local charities, running costs of cold chain and/or the building. Also, some clients may have reported that they paid fees that were part of lump sums charged by private facilities for more than one service. Finally, the study team did not fully evaluate service quality since no direct on the job observations of the health care providers were conducted due to budget limitations.

Policy Implications

There are potential policy implications of these findings on the private sector role in immunization in Malawi. These range from recognizing the importance of the private sector as a partner in immunization service delivery to programmatic implications.

The high proportion of vaccination services provided through the private sector indicates that private providers are providing an important role in immunization in increasing access to vaccination services in Malawi. Also, because of the high level of interaction between the private sector and government in the area of vaccinations, the service delivery is largely standardized. The national immunization program reinforces this standardization of service delivery by frequent supervision in most private facilities.

The following are recommendations for the private sector:

1. The DHOs should evaluate whether they can reinforce supervision of vaccination at private facilities by EPI coordinators and other district staff to ensure that quality services are being

provided and no fees are being charged for health passports. This can be accomplished through improving communication between the EPI, district-level health personnel and private providers.

2. The Medical Council should be urged to conduct its regulatory visits annually to insure that private facilities are providing quality services.

3. The government should evaluate whether it can improve its support to NGOs since these providers are receiving the least support for vaccination in comparison to FBOs and for-profit providers.

4. Continuous reorientation and enhancing professional knowledge and skills through training ensures accurate knowledge transfer and directly supports the success of immunization programs particularly the quality of vaccination program and its monitoring and disease surveillance.

5. Private providers are charging some fees for vaccinations. Some research could be conducted to assess the impact of these fees for services on vaccination utilization. For example, data from the Demographic and Health Survey and other household surveys could be analyzed to assess the impact of fees on vaccination demand.

6. Estimated private expenditures on immunization are 0.02% of total health expenditures.. While these are only a small part of total expenditures on immunization, estimating these periodically provides some useful information about possible barriers to use of services.

Malawi has an innovative approach to service delivery by contracting service delivery in private health facilities. Since they use government employees to provide the service at the private health facilities, they are better able to control the quality of services. It would be useful to study this private public partnership model in more detail to assess the efficiencies associated with this approach and whether it could be a model for other countries.

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1. Purpose and Scope of the Study

1.1 Purpose

Private sector providers, both for-profit and not-for-profit, offer immunization services in many low and middle-income countries (LMICs). The role of the private sector in immunization differs from country to country depending on national regulations and level of economic development. A few studies (Mitrovich et al. (2017), Amarsinghe 2017) have found that immunization service delivery in the private-for-profit sector is sometimes associated with poor performance due to lack of training, quality standards, and programme monitoring and limited supervision from governments. Limited information exists on the proportion of immunization services and private expenditures taking place through the private sector (Levin and Kaddar 2011, Levin 2017).

The Global Vaccine Action Plan 2011-2020 (GVAP) proposes increased private sector involvement strategies to "ensure strong immunization systems are an integral part of a well-functioning health system" (Global vaccine action plan 2011-2020. World Health Organization. 2013).

To learn more about the private sector's provision of vaccination service, Abt Associates is conducting three case studies in Benin, Malawi, and Georgia. This report presents the results of the case study in Malawi.

The objectives of the case study in Malawi are the following:

1. To estimate the proportion of routine immunization services provided through the private sector;
2. To estimate the proportion of total routine immunization expenditures spent on the private sector; and;
3. To determine whether the private sector and Ministry of Health are interacting to improve immunization program effectiveness and efficiency.

2. Background

2.1 Country Characteristics

Malawi is a landlocked country in southeastern Africa, bordered by Zambia to the northwest, Tanzania to the northeast and Mozambique to the south, southwest, and southeast. Malawi is classified as a low-income country according to the World Bank and had a per capita gross national income of $320 and per capita gross domestic product (GDP) of $301 in 2016 (data.worldbank.org). Its GDP growth is projected to increase to 4.5% in 2017 from 2.5% in 2016 due to improved rainfall.

As of 2016, Malawi had an estimated population of 18.1 million that is 16.3 percent urban (UNSTATS 2016). Table 1 shows that compared to the Sub-Saharan African (SSA) average, its life expectancy is greater, it is less urban, and its infant mortality and child mortality rates are lower. Some 44 percent of the population is under 15 years of age.

Table 1. Demographic Statistics for Malawi and Sub-Saharan Africa

	Malawi	Sub-Saharan Africa
Life expectancy at Birth	63.8	60
Urbanization	16.3%	37.4%
Percent of Population 1-14 years (2016)	44%	43%
Infant Mortality Rate (2016)	39	53
Child Mortality Rate (2016)	55	78

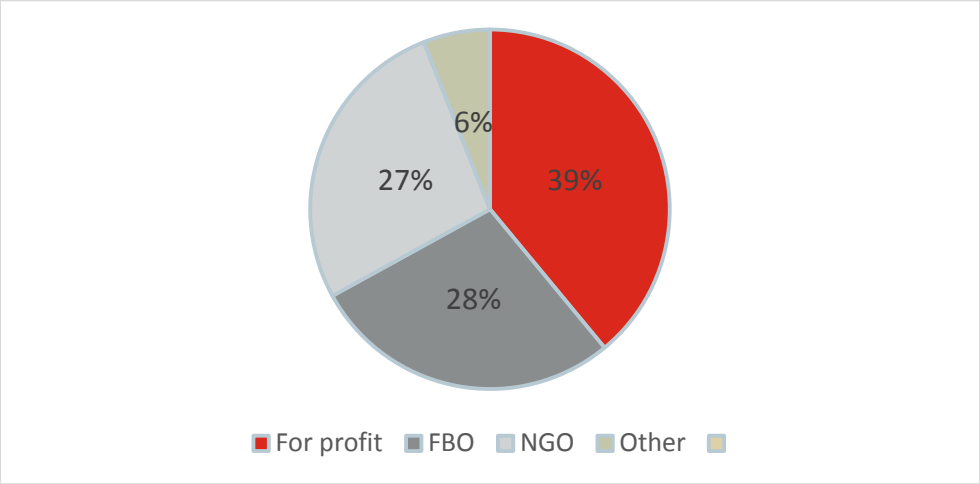
Source: data.worldbank.org

The top five causes of mortality in 2016 in Malawi were HIV/AIDS, lower respiratory infections, diarrheal diseases, malaria, and ischemic heart disease (IHME website).

2.2 Private Health System

The Malawi Private Provider Mapping (Abt 2013) conducted by the Abt Strengthening Health Outcomes through the Private Sector (SHOPS) project revealed that 53% of private facilities were in urban areas (40 % in urban and 13 % in peri-urban areas), and 47% in rural areas. Nearly half (49%) of all facilities were located in the Southern region, 37% in Central Region, and 14 % in the Northern region. Figure 1 shows that private facilities in the mapping had the following affiliations: 1) 39% private for-profit, 2) 28% faith-based, 3) 27% NGO, and 4) 6% other such as estates.

Figure 1. 2013 Private Provider Mapping Facility Ownership



Source: Malawi Private Sector Mapping 2013

The majority of private health facilities were clinics with outpatient services, followed by health centers (see Table 2). The remaining facilities included hospitals or private clinics with admission facilities, and others such as nurse-midwife facilities or mobile clinics.

Table 2. Type of Private Health Facilities, 2013

Type of Structure	Number	Percent
Private clinic with outpatient services only	429	56%
Health center	111	15%
Private Clinic with admission facilities	37	5%
Other	30	4%
Hospital	27	4%
Community hospital	19	2%
Nurse-midwife facility	7	1%
Rural hospital	6	1%
Mobile clinic	3	0%
Total	**669**	**100%**

Source: Malawi Private Sector Mapping, 2013

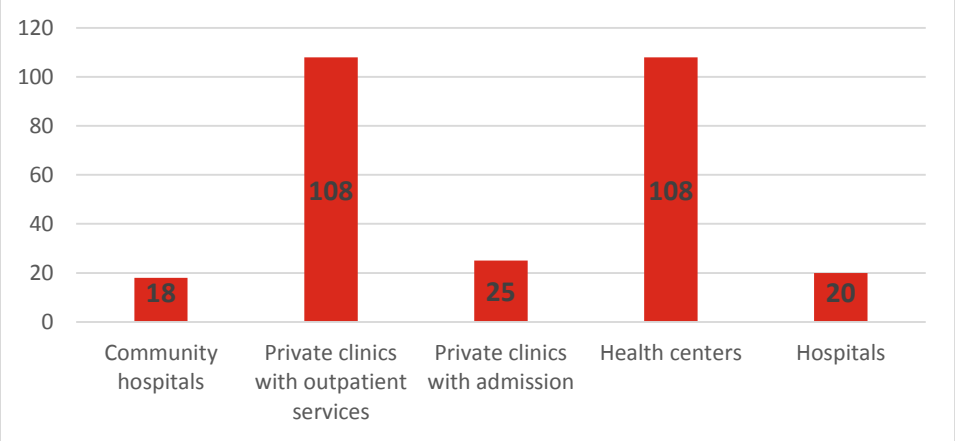
Private facilities offered a range of services with the largest share offering child curative care (Table 3). Slightly less than half of private facilities (44%) offered vaccination services. Figure 2 shows that facilities with vaccination services were most likely to be health centers and private clinics with outpatient services.

Table 3. Health Services Offered in Private Facilities

Service	#	Percentage
Child curative Care	564	84
Growth monitoring	347	52
Vaccination	292	44
Prenatal Care	245	37
Nutrition monitoring	242	37
PMTCT	246	37
Neonatal and post-natal care	223	33
Birth delivery	190	28
Other	41	6
Total	**669**	**100%**

Source: Malawi Private Sector Mapping, 2013

Figure 2. # of Private Facilities offering Immunization by Type, 2013



Source: Private Sector Mapping, 2013

2.3 National Immunization Schedule

Table 4 shows the national immunization schedule for Malawi:. six vaccines and fifteen doses are given to children under five years. Specifically, two vaccines- BCG and OPV – are given at birth, four vaccines – DTP-Hib-Hep B (pentavalent), OPV/IPV, rotavirus and PCV13 – between one and four months, and one -measles-rubella- at 9 and 15 months – while pregnant women receive five doses of tetanus-diphtheria vaccine at antenatal clinics.

Table 4. National Immunization Schedule

Vaccine	Schedule	WHO-UNICEF Coverage	2014 survey Coverage
BCG	Birth	86	98
DTP-Hib-HepB (pentavalent)	6, 10, 14 weeks	1st dose: 89 3rd dose: 84	97 93
OPV	Birth, 6, 10, 14 weeks	3rd dose: 83	81
Pneumococcal	6, 10, 14 weeks	3rd dose: 83	89
Measles Rubella	9 months, 15 months	1st dose: 81	NA
Rotavirus	6,10 weeks	2nd dose: 81	91
Tetanus Diphtheria	1st contact pregnancy: +1, +6 months; +1, +1 year.	89	62

Source: apps.who.int/immunization_monitoring/globalsummary

The District Health officers (DHO) and District EPI coordinators negotiate with private facilities for provision of EPI services: they enlist private facilities that are judged as having quality health services by the Medical Council, and which are also interested in providing this service.

Private facilities that are interested in providing vaccination services and that are approved by the Medical Council must meet the following criteria for provision of vaccines (personal communication, EPI Programme Manager):

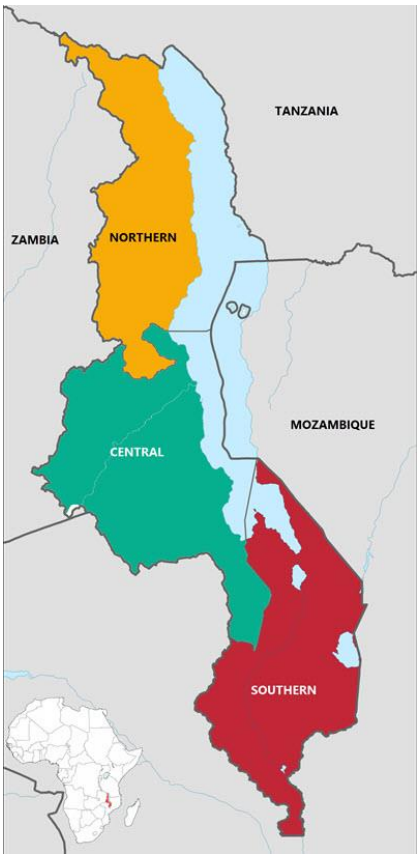
- Be 5 or more kilometres from another facility offering EPI services;
- Be able to house government health surveillance assistants (HSAs) for provision of EPI services;
- Be able to transport vaccines from DHO to the facility and from the facility to the communities for outreach clinics for growth monitoring and immunizations; and,
- Be reporting their EPI performance to the DHO on a monthly basis.

MoH health surveillance assistants administer the vaccinations in private facilities with assistance from the facilities' health personnel.

3. Methods

The study team surveyed health providers at fifty-three private and eleven public facilities on their provision of immunization services in the three regions: Northern, Southern and Central (Figure 3). The team also conducted five exit interviews at each health facility in the sample.

Figure 3. Map of Malawi with Regions Highlighted



The facility survey was adapted from the SHOPS project instruments. It includes questions on the following topics (see Appendix 1): 1) location and characteristics of the facility; 2) list of vaccines provided at fixed and outreach sites; 3) fee structure for vaccination services; 4) support received from the government for commodities, training, and supervision; 5) characteristics of vaccinators; 6) vaccine storage; and 7) availability of vaccines. The interviewers obtained information on monthly immunization service volume through summarizing data from vaccination registers from the last three months.

The client exit interview was adapted from the Demographic and Health Service Provision Assessment exit interview questionnaire. The questionnaire includes questions on the following: 1) characteristics of vaccines; 2) vaccines received; 2) waiting time; 3) client satisfaction with service; and 4) charges paid for vaccination,

3.1 Sampling

The sample included facilities from each of the three regions: Northern, Southern, and Central (Figure 3). The sample size was determined with a 95% confidence interval and precision level of 10%. The team used stratified random selection to identify 53 private facilities from the 2013 Abt Private Sector Mapping in Malawi. They chose ten districts among the three regions with the number of districts in each region dependent on the number of private facilities in the sampling frame. If selected facilities had moved or no longer provided vaccination, the team replaced these with other facilities.[1] The team also surveyed eleven public health facilities from across the three regions for comparison purposes.

The final selection of facilities had the following ownership (Table 5): 32 faith-based (50%), 16 private for-profits (25%), 5 NGOs (8%), and 11 public (17%). The private for-profit facilities were mainly clinics or hospitals, while FBOs were more likely to be health centers and hospitals. The NGOs, on the other hand, included clinics, a dispensary, a health center, and a hospital. The majority were located in Central (42%) and Southern regions (45%) since more private facilities were located in these regions (where the cities of Lilongwe and Blantyre are found).

Table 5. Ownership of Facilities by Type of Facility

	Maternity	Health Centers	Dispensary	Clinic	Hospital	Total
Public	0 (0%)	8 (13%)	0 (0%)	0 (0%)	3 (5%)	**11 (17%)**
Private for Profit	1 (2%)	2 (3%)	1 (2%)	7 (11%)	5 (8%)	**16 (25%)**
FBO	0 (0%)	14 (22%)	1 (2%)	3 (5%)	14 (22%)	**32 (50%)**
NGO	0 (0%)	1 (2%)	1 (2%)	2 (3%)	1 (2%)	**5 (8%)**
Total	**1 (2%)**	**25 (41%)**	**3 (5%)**	**12 (19%)**	**23 (36%)**	**64 (100%)**

Table 6 shows characteristics of the sampled facilities by urban/rural location. A little less than two-thirds (63%) were in rural areas. The majority of for-profit facilities (56%) were in urban areas while the majority of faith-based, NGO and public facilities were in rural areas. Similarly, more clinics, dispensaries, and maternities were in urban areas while the majority of hospitals and health centers were in rural areas.

[1] In Malawi, the EPI district coordinators negotiates with private facilities to offer vaccination services at their venues.

Table 6. Characteristics of Health Facilities in the Sample

	Urban	Rural	Total
Region			
Northern	3 (5%)	5 (8%)	8 (13%)
Central	8 (13%)	19 (30%)	27 (42%)
Southern	13 (20%)	16 (25%)	29 (45%)
Total	**24 (38%)**	**40 (63%)**	**64 (100%)**
Facility Ownership			
Public	2 (8%)	9 (23%)	11 (17%)
Private For-Profit	9 (14%)	7 (18%)	16 (25%)
Faith-based	11 (17%)	21 (53%)	32 (50%)
NGO	2 (8%)	3 (8%)	5 (8%)
Total	**24 (38%)**	**40 (63%)**	**64**
Facility Types			
Hospital	7 (11%)	16 (25%)	23 (36%)
Health Center	6 (9%)	19 (30%)	25 (41%)
Clinic	8 (13%)	4 (6%)	12 (19%)
Dispensary	2 (8%)	1 (2%)	3 (5%)
Maternity	1 (2%)	0 (0%)	1 (2%)
Total	**24 (38%)**	**40 (63%)**	**64**

The data collectors also conducted exit interviews – interviews with 313 clients that received vaccinations. Of these, three of the respondents or their children had not received routine vaccination services because of stock outs, leaving 310 interviewees. Table 7 shows that the average age of the respondents was 25; approximately half had some primary education while a third had secondary or greater education. The education levels were higher for clients at private for-profits and NGOs than at FBOs and public facilities.

Table 7. Characteristics of Exit Interview Respondents

Characteristic	Total Respondents	Public (n=91)	For-Profit (n=73)	FBO (n=124)	NGO (n=18)
Person Vaccinated					
Children	270 (87%)	79 (87%)	62 (86%)	113 (89%)	16 (89%)
Pregnant women	34 (11%)	11 (12%)	9 (11%)	12 (9%)	2 (11%)
Lactating women	6 (2%)	1 (1%)	2 (3%)	2 (2%)	0 (0%)
Age of Respondent					
Median (mean)	25 (26)	22 (24)	26 (27)	25 (26)	31 (30)
Education					
None	11 (4%)	3 (3%)	1 (1%)	7 (5%)	0 (0%)
Some primary	143 (46%)	50 (55%)	30 (41%)	57 (44%)	6 (33%)
Primary	46 (15%)	13 (14%)	6 (8%)	25 (20%)	2 (11%)
Secondary	84 (27%)	22 (24%)	19 (26%)	35 (27%)	8 (44%)
Tertiary	26 (8%)	3 (3%)	17 (23%)	4 (3%)	2 (11%)

3.2 Analysis

Our team analyzed survey data on private sector vaccination by calculating percentages, means, and medians to summarize characteristics of the private sector immunization services, coordination between the government and private sector facilities, service quality, share of total vaccinations, and share of private expenditures.

We **measured coordination** between the government and the private sector with the following indicators of MoH support: 1) provision of vaccines, injection supplies, and cold chain equipment; 2) training on new vaccines and improving vaccination; and 3) frequency of supervision. Another variable is the frequency of reporting by private health facilities on monthly vaccinations conducted.

We also measured **service quality variables**. These variables include: 1) availability of vaccines at private health facilities; 2) frequency of training for vaccinators; 3) adequacy of cold chain equipment used for vaccine storage; 4) frequency of MoH supervision; and 5) client satisfaction.

Our team estimated the **proportion of total vaccinations** through the private sector using the following methods: 1) Estimate the number of vaccination services provided through the private sector through multiplying annual, monthly provision of vaccination services by number of private facilities. To do so, we assumed that the number of private facilities providing immunization was the same as that found in the Malawi 2013-14 Service Provision Assessment Survey (2014); 2) divided the private sector vaccination services by the estimate of total vaccinations conducted in Malawi. We calculated total vaccination by multiplying vaccine coverage x number of the target population by antigen.

Our team estimated **private expenditures on immunization** by type and ownership. Expenditures on vaccinations include vaccination cards, service fees, vaccine fees, and syringes. We estimated total expenditures by multiplying average expenditures by facility service by the number of facilities by ownership (SPA 2014). We also estimated the value of private sector health personnel time by multiplying average staff salaries by number of vaccinations, assuming that nurses/midwives spend six minutes on each vaccination. Finally, we divided total private sector expenditures by Malawi's national private out-of-pocket (OOP) expenditures on health and national health expenditures.

We also estimated the value of the time that private providers spend on administration of vaccines. To do this, we multiplied the value of a minute of a health worker's salary by the average number of minutes required per vaccination. We assumed that each vaccination takes six minutes based on a study by Ngado et al. (2015). We also assumed that the health workers that administer vaccines would be nurses based on responses to the survey questions on vaccinators.

4. Results

4.1 Immunization Services offered through the Private Sector

Private sector facilities reported that they are providing vaccination services to four target populations: 1) children under five, 2) pregnant women, 3) adolescents, and 4) health workers.

Table 8 shows vaccines offered by target population and facility ownership. The private facilities offer the same vaccines for infants and pregnant women at fixed sites as found in public facilities, although a few facilities do not provide BCG or Vitamin A tablets. A few facilities also offer Td vaccine to adolescents (10% at fixed sites) and Hepatitis B vaccine to health workers (10% at fixed sites).

Over half of the private facilities also provide vaccinations at outreach sites. Specifically, over three-quarters of FBOs provide vaccinations through outreach, while about half of private for-profit and NGO facilities provide vaccines through outreach sites.

Table 8. Vaccines Offered by Facility Ownership in Malawi

	Public (n=11)	Private (n=16)	FBO (n=32)	NGO (n=5)
Provide Infant Vaccines through Fixed Sites				
Vaccines in EPI schedule				
BCG	11 (100%)	15 (94%)	31 (97%)	4 (80%)
Pentavalent	11 (100%)	16 (100%)	32 (100%)	5 (100%)
OPV	11 (100%)	16 (100%)	32 (100%)	5 (100%)
PCV13	11 (100%)	16 (100%)	32 (100%)	5 (100%)
Rotavirus	11 (100%)	16 (100%)	32 (100%)	5 (100%)
Measles Rubella	11 (100%)	16 (100%)	32 (100%)	5 (100%)
Vitamin A	9 (82%)	15 (94%)	28 (88%)	5 (100%)
Provide Infant Vaccines through Outreach Sites				
BCG	11 (100%)	7 (44%)	27 (84%)	3 (60%)
Pentavalent	11 (100%)	9 (56%)	28 (88%)	3 (60%)
OPV	11 (100%)	9 (56%)	28 (88%)	3 (60%)
PCV13	11 (100%)	9 (56%)	28 (88%)	3 (60%)
Rotavirus	11 (100%)	9 (56%)	28 (88%)	3 (60%)
Measles Rubella	11 (100%)	9 (56%)	28 (88%)	3 (60%)
Vitamin A	9 (82%)	9 (56%)	26 (81%)	3 (60%)
Provide Vaccines to Pregnant Women through Fixed Sites				
Td	11 (100%)	16 (100%)	31 (97%)	3 (100%)
Vitamin A	7 (64%)	12 (75%)	26 (81%)	4 (80%)
Provide Vaccines to Pregnant Women through Outreach Sites				
Td	11 (100%)	50 (50%)	27 (84%)	1 (17%)
Vitamin A	7 (64%)	6 (38%)	23 (72%)	3 (60%)
Provide Adolescent Vaccines through Fixed Sites				
Td	2 (18%)	1 (6%)	3 (9%)	0 (0%)

	Public (n=11)	Private (n=16)	FBO (n=32)	NGO (n=5)
Provide Adolescent Vaccines through Outreach				
Td	1 (9%)	0 (0%)	2 (6%)	0 (0%)
Provide Health Workers Vaccines through Fixed Sites				
Hepatitis B	1 (9%)	1 (6%)	7 (22%)	1 (20%)

4.2 Utilization Patterns at Public, For-Profit and Not-for-Profit Facilities

Table 9 shows that the provision of private monthly vaccination services at fixed sites was highest at FBOs, followed by for-profits. For example, FBOs, for-profit facilities, and NGOs provide 150, 57, and 28 pentavalent vaccinations (median) monthly. The provision of vaccinations at private facilities is lower than that of public facilities – ranging from 9% (NGOs) to 46% (FBOs) of the service volume at public facilities.

Table 9. Median and Mean Monthly Vaccinations for Children and Pregnant Women per Month at Fixed Sites (Mean in parentheses)

Vaccine	Public	For-Profit	Faith-based	NGO
Fixed Sites				
BCG	121 (180)	10 (20)	48 (82)	9 (21)
Pentavalent	321 (360)	57 (70)	150 (180)	28 (50)
OPV	404 (476)	62 (91)	192 (246)	32 (69)
PCV13	291 (350)	54 (67)	131 (182)	25 (47)
Rotavirus	208 (241)	34 (41)	93 (120)	18 (29)
Measles-Rubella	142 (208)	26 (38)	65 (106)	16 (30)
Vitamin A	0 (38)	16 (16)	4 (69)	14 (30)
Td to Pregnant Women	21 (22)	21 (14)	22 (18)	4 (10)
Td to Adolescents	8 (49)	2 (2)	4 (4)	0 (0)
Hepatitis B to Health Workers	42 (42)	21 (21)	73 (101)	6 (6)

Table 10 shows the service volume at outreach sites. FBOs had the highest vaccination service volume at outreach sites among private facilities, followed by NGOs. For-profit facilities provided only a small number of vaccinations through outreach. For example, the median monthly pentavalent vaccination services were 111 at FBOs, 31 at NGOs, and 3 at for-profits.

Table 10. Monthly Median and Mean Service Utilization at Outreach Sites (Mean in parentheses)

Vaccine	Public	For-Profit	Faith-based	NGO
BCG	14 (17)	0 (8)	10 (21)	3 (7)
Pentavalent	165 (155)	3 (38)	111 (126)	31 (56)
OPV	174 (161)	5 (46)	114 (140)	35 (60)
PCV13	160 (148)	5(37)	107 (124)	31 (50)
Rotavirus	106 (93)	2 (25)	67 (82)	18 (34)
Measles	88 (96)	2 (22)	56 (85)	11 (26)
Vitamin A	38 (36)	1 (10)	25 (29)	4 (13)
Td to Pregnant Women	50 (52)	1 (2)	6 (8)	12 (18)
Td to adolescents	0 (11)	0 (0)	0 (23)	0 (0)

4.3 Fees for Immunization Reported by Private Sector Facilities

Table 11 shows that some health facilities reported charging for vaccination: health passports (8-9% for child or women passports), vaccination services (3%), vaccines (2%), and entry (2%). The fees for vaccination passports range from 150-200 MK ($0.21-$0.28) while the fees for vaccination services range from 100 MWK to MWK150 ($0.14-$0.21).

Table 11 Official Fees Charged for Vaccination by Type of Facility (MWK)

Charge for the Following	Public (n=11)	For-Profit (n=16)	Faith-based (n=32)	NGO (n=5)	Total
Child health passport	1 (9%)	3 (19%)	1 (3%)	0	5 (8%)
Woman health passport	1 (9%)	3 (19%)	1 (3%)	1 (20%)	6 (9%)
Service	0	1 (6%)	0	1 (20%)	2 (3%)
Vaccine	0	1 (6%)	0	0	1 (2%)
Entry fee	0	0	1 (3%)	0	1 (2%)
Fees Charged (median) (MWK)					
Child health passport					
150	1	1	0	0	2
200	0	2	1	0	3
Woman vaccination book					
150	1	1	0	1	3
200	0	2	1	0	3
Service					
100	0	0	0	1	1
150	0	1	0	0	1
Entry Fee					
100	0	0	1	0	1
Charges for Vaccine	**0**	**1**	**0**	**0**	**1**
How much is charged?					
BCG	0	200	0	0	NA

Pentavalent	0	200	0	0	
OPV	0	200	0	0	
PCV	0	200	0	0	
Rotavirus	0	200	0	0	
Td	0	200	0	0	

Note: 100 MWK = $0.14 USD

Table 12 shows the vaccinations obtained by clients and fees reported by clients at the facilities. Some 14% of clients paid fees for vaccinations at the facilities – 8% at public facilities, 9% at FBOs, 18% at for-profits, and 22% for NGOs. Of the 14%, 57% paid for health passports, 25% for vaccination services, and 18% for vaccines.

Table 12 Client's Use of Vaccination Service and Fees Paid, MWK/USD

Service Received or Fee Paid	Total	Public (n=91)	For-profit (n=73)	FBO (n=128)	NGO (n=18)
Vaccinations/Vitamin A Received					
BCG	49	9	5	29	6
Pentavalent	129	50	27	48	4
OPV	169	59	26	75	9
PCV13	146	52	26	63	5
Rotavirus	101	36	15	49	1
Measles	32	7	13	11	1
Tetanus Diphtheria	77	28	19	22	8
Vitamin A	36	9	9	17	1
Beneficiary of a Prepaid Plan or Insurance					
Yes	26	3	16	7	0
Don't Know	1	0	1	0	0
Paid Fee for Vaccination at Facility					
Yes	44 (14%)	7 (8%)	13 (18%)	11 (9%)	4 (22%)
# of facilities where respondents paid:	(n=64)	(n=11)	(n=16)	(n=32)	(n=5)
Health passport	13 (20%)	5 (31%)	2 (6%)	5 (16%)	1 (6%)
Service	8 (13%)	2 (18%)	3 (9%)	2 (6%)	1 (6%)
Vaccines	5 (8%)	0 (0%)	2 (6%)	2 (6%)	1 (6%)
% respondents paying:	(n=310)	(n=91)	(n=73)	(n=128)	(n=18)
Health Passport	25 (8%)	7 (7%)	5 (7%)	12 (10%)	1 (6%)
Service	11 (4%)	2 (2%)	5 (7%)	2 (2%)	2 (11%)
Vaccines	8 (3%)	0 (0%)	4 (5%)	3 (2%)	1 (6%)
Amount paid (MWK/USD):					
Median (mean)					
Health Passport	200 (200)/ 0.28 (0.28)	200 (169)/ 0.28 (0.23)	200 (200)/ 0.28 (0.28)	150 (119)/ 0.21 (0.16)	150 (150)/ 0.21 (0.21)
Service	150 (464)/ 0.21 (0.64)	600 (600)/ 0.83 (0.83)	150 (400)/ 0.21 (0.55)	850 (850)/ 1.17 (1.17)	100 (100)/ 0.14 (0.14)
Vaccine	350 (331)/ 0.48 (0.46)	0	375 (500)/ 0.52 (0.69)	100 (183)/ 0.14 (0.25)	100 (100)/ 0.14 (0.14)
Range					
Health Passport	100-500/ 0.14 – 0.69	150-250/ 0.21 – 0.35	200/ 0.28	100-500/ 0.14 – 0.69	150/ 0.21
Service	50-1200/ 0.07 – 1.66	200-1000/ 0.28 – 1.38	50-1000/ 0.07 – 1.38	500-1200/ 0.69 – 1.66	100/ 0.14
Vaccine	100-900/ 0.14 – 1.24	0	400-900/ 0.44 – 1.24	350/ 0.48	100/ 0.14

Note: 725 MWK = $1.00 USD

A larger share of respondents paid fees at NGOs (22%) and for-profits (19%) than at FBOs (13%) and public facilities (10%). The range of fees was greatest for FBOs, followed by private for-profits.

4.4 Coordination between Private Sector and Government on Provision of Government Services

Table 13 shows indicators of coordination between the MoH (EPI) and private sector facilities. The MoH provides several types of support to private sector facilities that administer vaccinations: vaccines, injection supplies, and vaccinators. It also provides cold chain equipment (40-88%) and running costs (25-69%) to some private facilities, with the most support going towards FBOs and the least to NGOs.

Table 13. Indicators of Coordination between MoH and Private Sector

	Public (n=11)	For-profit (n=16)	Faith-based (n=32)	NGO (n=5)
Gets commodities from MoH				
Vaccines	11 (100%)	16 (100%)	32 (100%)	5 (100%)
Injection Supplies	11 (100%)	16 (100%)	32 (100%)	5 (100%)
Registers	11 (100%)	14 (88%)	32 (100%)	5 (100%)
Child health passports	10 (91%)	10 (63%)	30 (94%)	4 (80%)
Women health passports	10 (91%)	10 (63%)	28 (88%)	4 (80%)
Source of cold chain equipment				
Government	11 (100%)	9 (56%)	28 (88%)	2 (40%)
Headquarters	0 (0%)	4 (25%)	0 (0%)	1 (20%)
UNICEF	0 (0%)	2 (13%)	2 (6%)	0 (0%)
Local charities	0 (0%)	1 (6%)	2 (6%)	1 (20%)
Source of running costs for cold chain				
Government	11 (100%)	11 (69%)	24 (75%)	1 (25%)
Headquarters	0 (0%)	3 (19%)	1 (3%)	1 (25%)
Other	0 (0%)	2 (13%)	7 (22%)	2 (50%)
Cadre of Staff Providing Vaccination				
Nurse	1	4	3	0
HSA	10	11	29	5
AEHO	0	1	0	0
# Health Workers/Session Median (Mean)	5 (6.5)	3 (2.6)	5 (5)	4 (3.6)
Facility sends monthly reports to:				
DHO	10	14	29	4
EPI	1	2	3	1
Supervised by MoH	11 (100%)	15 (94%)	30 (94%)	5 (100%)

The MoH conducts supervision at most private facilities on a monthly or quarterly basis – 94% of for-profits and FBOs and 100% of NGOs.

4.5 Vaccination Service Quality

Table 14 shows indicators of vaccination service quality by facility ownership such as accreditation and training. All of the facilities are accredited – i.e., are registered with a regulatory body such as the Medical Council of Malawi or the Nurses' Council. Most received regulatory visits within the last year. However, 19% of for-profits, 22% of FBOs, and 40% of NGOs had not received an accreditation visit for more than a year. Also, the MoH supervises all but three private facilities - 1 for-profit (6%) and two FBOs (6%).

Table 14. Measures of Immunization Service Quality in the Sample Facilities in Malawi

	Public (n=11)	For-Profit (n=16)	Faith-based (n=32)	NGO (n=5)
Registered with Regulatory Body	11 (100%)	16 (100%)	32 (100%)	5 (100%)
Medical Council of Malawi	11	15	30	5
Nurses' Council	9	6	12	2
Other	0	1	2	1
Last Accreditation visit to the facility				
< 6 months	3	6	6	2
Between 6-12 months	2	7	18	1
More than a year	3	3	7	2
No response	3	0	1	0
Received Vaccine intro Training Last Two Years	11 (100%)	15 (94%)	30 (94%)	5 (100%)
Source of training				
MoH	9	11	19	3
UNICEF	2	4	4	1
WHO	0	0	2	0
World Vision	0	0	3	0
Other	0	1	4	0
Received Vaccination Delivery Training Last Two Years	4 (36%)	8 (50%)	18 (56%)	3 (60%)
MoH	4	4	12	1
UNICEF	0	2	2	0
WHO	1	0	1	0
Store Vaccines at Facility	11 (100%)	16 (100%)	31 (97%)	4 (80%)
Type of refrigerator				
Ice liner	7	5	17	2
Domestic	1	2	13	0
Freezer	5	5	7	1
Compression	0	1	0	0
Solar	1	0	0	1
Upright	0	4	1	0
Other	0	0	2	0

	Public (n=11)	For-Profit (n=16)	Faith-based (n=32)	NGO (n=5)
Does refrigerator have a:				
Thermometer	7 (64%)	8 (50%)	18 (56%)	2 (50%)
Fridge tag	11 (100%)	14 (88%)	31 (97%)	3 (75%)
MoH Supervises Facility	**11 (100%)**	**15 (94%)**	**30 (94%)**	**5 (100%)**
Most recent supervision from MoH				
Monthly	1	4	10	2
Quarterly	8	11	14	1
Every 6 months	1	0	4	0
Yearly	1	0	2	2
Availability of Vaccines (observed)				
BCG	11 (100%)	11 (69%)	30 (94%)	4 (80%)
Pentavalent	11 (100%)	13 (81%)	30 (94%)	4 (80%)
OPV	11 (100%)	12 (75%)	30 (94%)	4 (80%)
PCV	11 (100%)	13 (81%)	31 (97%)	4 (80%)
Rotavirus	10 (91%)	13 (81%)	31 (97%)	4 (80%)
Measles-rubella	11 (100%)	13 (81%)	32 (100%)	4 (80%)
Td	11(100%)	12 (75%)	32 (100%)	4 (80%)
Vitamin A	9 (82%)	12 (75%)	26 (81%)	4 (80%)

Most private health personnel received training on vaccine introduction during the last two years: 94% in private for-profits and FBOs and 100% in NGOs. Majority of the trainings were provided by the MOH. A lower percentage of facilities received training on improving vaccine service delivery during the last two years, ranging from 50% of for-profits to 60% of NGOs.

Most (96%) of the private facilities stored vaccines at their facilities. However, 26% of the facilities had refrigerators for vaccine storage that were domestic and did not meet MoH approval. Most facilities (81%) with domestic refrigerators were FBOs.

The availability of vaccines at private facilities was greater at FBOs (94-100%) and NGOs (80%) than at for-profit facilities (69-81%).

Table 15 shows indicators of client satisfaction by facility ownership from the exit interviews. The median waiting time for services was highest at public facilities and lowest at for-profit facilities. Clients were most dissatisfied with longer waiting times, followed by lack of explanation about vaccination services. Clients at for-profits, FBOs, and public facilities were most dissatisfied with long waiting times, while at NGOs, they were most dissatisfied with the lack of clarifications. Eighty percent of respondents were at the facility closest to their home, and most were satisfied with the services.

Table 15. Indicators of Client Satisfaction for Private Sector Immunization Services in Malawi

Characteristic	Total Respondents	Public (n=91)	For-Profit (n=73)	FBO (n=124)	NGO (n=18)
Health facility closest to home	249 (80%)	78 (86%)	55 (75%)	101 (79%)	15 (83%)
Reason that did not go to it					
Hours of service	10 (16%)	4	2	3	1
Bad reputation	6 (10%)	0	4	1	1
Don't like health workers	7 (11%)	0	2	5	0
Poor availability of medicines	5 (8%)	2	2	1	0
High costs	6 (10%)	3	3	0	0
Was referred	4 (6%)	0	0	4	0
Other	23 (37%)	3	5	14	1
Don't know	2 (3%)	1	0	1	0
Health Worker Responded to questions					
Yes	45 (79%)	13 (87%)	12 (75%)	20 (95%)	5 (100%)
No	6 (11%)	1 (7%)	4 (25%)	1 (5%)	0 (0%)
Don't know	1 (2%)	1 (7%)	0 (0%)	0 (0%)	0 (0%)
Waiting Time					
Median (mean)	12 (28)	20 (34)	5 (30)	10 (21)	13 (37)
Problems with Services					
Waiting time	65 (21%)	28	17	18	1
Not able to discuss problems	36 (12%)	11	14	9	2
Asking for clarifications	40 (13%)	8	13	14	5
Amount of Explanation	44 (14%)	12	13	16	3
Availability of Vaccines	18 (6%)	4	1	10	3
Hours of Service	20 (6%)	10	2	8	0
Days that Service is available	19 (6%)	5	2	12	0
Cleanliness of Facility	32 (10%)	11	7	14	0
How well treated	17 (5%)	11	3	3	0
Cost of Services	18 (6%)	2	4	12	0
Other	7 (2%)	3	0	4	0

4.6 Proportion of Immunizations Provided at Private Sector Facilities in Malawi

As mentioned in the Methods Section, we estimated the number of total vaccinations administered through the private sector through extrapolating the number of vaccinations that would take place if the median number of vaccinations at sampled private facilities were to take place at all private facilities throughout the country that provide vaccination services. Table 16 shows the number of vaccinations provided at private sector by ownership and antigen, assuming the number of private facilities in the 2014 Malawi Service Provision Assessment is correct. Most private vaccinations took place at FBOs (2.0 million), followed by for-profit facilities (0.1 million). Total annual vaccinations were estimated using

WHO/UNICEF immunization coverage estimates and population. The share of total annual vaccinations taking place at private sector facilities is estimated to be 26.6%.

Table 16. Estimated Vaccinations Provided at Private Sector Facilities by Ownership and Antigen

	For-Profit (000s)	FBO (000s)	NGO	Total Private (000s)	Est. Target Pop Vaccines	% Private Share
BCG	4	98	2	104	572,260	18%
Pentavalent	26	455	10	491	557,140 525,840	30%
OPV	28	537	11	577	519,580	26%
PCV13	25	414	9	448	519,580	28%
Rotavirus	15	279	6	301	507,060	29%
Measles Rubella	12	210	5	227	507060	25%
Tetanus Diphtheria	9	49	1	60	379,620	16%
Total	119 (1.4%)	2,043 (24.6%)	45 (0.5%)	2,208 (26.6%)	NA	NA

*WHO/UNICEF coverage rates (http://apps.who.int/immunization_monitoring/globalsummary); *Malawi Service Provider Assessment; UNSTATS ** Number of infants or pregnant women multiplied by the coverage

4.7 Expenditures on Immunization in the Private Sector in Malawi

As mentioned in the Methods Sections, we also estimated the total private expenditures on vaccination, including private expenditures on vaccination by clients in public facilities. Table 17 shows the estimate of private expenditures by facility ownership and type of expense on vaccination – health passports, vaccination services, and vaccines, based on reported fees at private facilities. It shows that private expenditures are estimated to be 90.2 million MWK ($124,449). The private expenditures range from 67.1 million MWK ($92,487) for service fees, 11.8 million MWK ($16,269) for health passports, and 11.4 million MWK ($15,694) for vaccines.

Table 17. Estimated Private Expenditures on Vaccination by Facility Ownership and Type of Expense, MWK (USD)

	Public (000s)	For-Profit (000s)	FBOs (000s)	NGO (000s)	Total (000s)	
					Amount	%
Health Passport (includes both Child and Woman)	9,107	61	2,604	23	11,795 ($16)	13%
Service	28,514	1,467	36,758	314	67,053 ($92)	74%
Vaccine	0	3,110	7,914	354	11,378 ($16)	24%
Total	37,621	4,638	47,275	691	90,226 ($124)	100%
Total Health Out-of-Pocket Spending	NA	NA	NA	NA	$65,788*	NA
% of Private Spending on Immunization to Health Out-of-Pocket Spending	NA	NA	NA	NA	0.2%	NA
Total National Spending on Health	NA	NA	NA	NA	$707,400**	NA
% of Private Spending on Immunization to Total National Spending on Health	NA	NA	NA	NA	0.02%	NA

Source: * IHME website, ** Health Policy Project Malawi Financing Profile, 2016

We compared private expenditures on vaccinations to the 2014 out-of-pocket spending and total spending on health (IHME, 2016 Malawi Health Policy Project). The proportions of OOP and total expenditures that are private expenditures on immunization are estimated to be 0.2% and 0.02%, respectively.

4.8 Private Health Personnel Time

We also estimated the value of private health personnel time by assuming that either a nurse or an aide assists with each vaccination. The total estimated value is $303,749. The contribution of private sector health personnel is highest at FBOs (96.0%) at 211 million MWK ($291,462), assuming that two private health facilities staff assist EPI staff with the vaccination.

Table 18. Estimated Value of Private Health Personnel Time Spent on Immunization

	Private (000s)	FBOs (000s)	NGO (000s)	Total
Personnel Time	5,066 ($7)	211,310 ($291)	3,842 ($5)	202,218 ($304)

5. Discussion

The case study in Malawi revealed that the national immunization program is collaborating closely with the private sector to provide vaccination services. It has service-level agreements with private facilities, sends vaccinators to the private sector facilities to conduct immunization sessions, and supplies vaccines, injection supplies, and some cold chain equipment while the private sector provides the venues, health personnel, and some of the cold chain and running costs. The approach is a type of contracting between the MoH and private facilities and appears to be an efficient approach to increase access to immunization service delivery.

The District Health Officers (DHO) and EPI coordinators negotiate with private facilities to determine which facilities are interested and qualified to provide vaccines. The MoH provides support to these facilities. The MoH supplies these facilities with vaccines and injection supplies, and, in most cases, registers for recording service volume.

The proportion of total vaccinations provided at private facilities is estimated to be 27% (2,208,000 vaccinations). The proportion of private sector vaccinations is greater than most other African countries such as Ethiopia (0.7%), Zimbabwe (0.05 – 3%), Morocco (5%), and Mauritania (10%) (Levin 2011). It is also greater than many Asian countries such as India (10%+), Sri Lanka (15%), and Thailand (10%). However, it differs from other countries since it sends its own vaccinators into private facilities and has more control over the service delivery.

The majority of vaccination services provided at private facilities in Malawi takes place at FBOs (93% of private), followed by private for-profit facilities (5%). NGOs have a smaller role in the immunization program with 2.1% of private vaccinations (0.5% of total vaccinations) taking place at NGOs.

The percent of private facilities that get cold chain equipment (40-88%) and running costs (25-69%) from the government varies, with the most support going towards FBOs and the least to NGOs. As a result, some facilities are getting their equipment from other sources and 26% of the facilities had non-regulation refrigerators for vaccine storage (domestic refrigerators).

Despite the use of government employees to supply vaccination in private facilities, some quality issues were observed. Specifically, 26% of private facilities had non-regulation refrigerators and 12% were supervised infrequently. Other issues with service quality include: 1) 26% of facilities had infrequent regulatory visits (longer than a year), 2) some private for-profits and NGOs had incomplete vaccine stock in their facilities; and 3) waiting time was long at some private facilities, similar to findings in Olorunsaiye (2017) on four African countries (Kenya, Tanzania, Senegal and Malawi).

Some private and public facilities are charging fees for vaccination and 14% of exit interview respondents reported paying fees. They were most likely to pay for vaccination cards (8%) but a few also paid for vaccination services (4%) and vaccines (3%) in some facilities. In total, 23% of private providers reported that they are charging fees, most of which go towards paying for health passports, despite official policy to offer these at no charge.

The Malawi government does not regulate fees that private facilities or providers charge for vaccinations and allows private facilities to determine fees that they charge as long as these are nominal ‘service fees’. However, these fees may be a deterrent to the utilization of vaccination.

The study team estimated that total private expenditures on immunization were approximately $124,000. These expenditures are 0.2% and 0.02% of out-of-pocket and total expenditures on health in Malawi, respectively. This finding indicates that private expenditures are not large. However, the ones that exist may be a deterrent to use of services in locations where public facilities are not accessible.

Some limitations of the study should be noted. Some expenditures may have been omitted due to lack of information on purchases of cold chain by facilities or local charities, running costs of cold chain and/or the building. Also, some clients may have reported that they paid fees that were part of lump sums charged by private facilities for more than one service and these were not disaggregated. Immunization service quality might be more fully assessed as part of a dedicated study, utilizing a wider range of indicators which was not possible under the original scope of this exercise.

Also, we do not have any anecdotal evidence of services including quality of care from both clients and providers.

5.1 Policy Implications

There are potential policy implications of these findings on the private sector role in immunization in Malawi. These range from recognizing the importance of the private sector as a partner in immunization service delivery to programmatic implications.

The high proportion of vaccination services provided through the private sector indicates that private providers are providing an important role in immunization in increasing access to vaccination services. Also, because of the high level of interaction between the private sector and government in the area of vaccinations, the service delivery is largely standardized. The national immunization program reinforces this standardization of service delivery by frequent supervision in most private facilities.

The following are recommendations for the private sector:

1. The DHOs should evaluate whether they can reinforce supervision of vaccination at private facilities by EPI coordinators and other district staff to ensure that quality services are being provided and no fees are being charged for health passports. This can be accomplished through improving communication between the EPI, district-level health personnel and private providers. The opportunities for structured dialogue could include participation in task forces, leadership committees, information sharing and involvement in policy changes and prioritization. (WHO 2017).

2. The Medical Council should be urged to conduct its regulatory visits annually to insure that private facilities are providing quality services.

3. The government should evaluate whether it can improve its support to NGOs since these providers are receiving the least support for vaccination in comparison to FBOs and for-profit providers.

4. Continuous reorientation and enhancing professional knowledge and skills through training ensures accurate knowledge transfer and directly supports the success of immunization programs particularly the quality of vaccination program and its monitoring and disease surveillance.

5. Private providers are charging some fees for vaccinations. Some research could be conducted to assess the impact of these fees for services on vaccination utilization. For example, data from the Demographic and Health Survey and other household surveys could be analyzed to assess the impact of fees on vaccination demand.

6. Estimated private expenditures on immunization are 0.2% of private expenditures on health. While these are only a small part of total expenditures on immunization, estimating these periodically provides some useful information about possible barriers to use of services.

Malawi has an innovative approach to service delivery by contracting service delivery in private health facilities with service-level agreements. Since they use government employees to provide the service at the private health facilities, they can better able to control the quality of services to a greater extent. It would be useful to study this public private partnership model in more detail to assess efficiencies associated with this approach and whether it could be tried in other countries.

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Appendices

I. Facility Questionnaire

Section A – Basic Questions			
Number	**Question**	**Answer**	**Code**
1.	Interview start time (Use 24-hour time)	hh.mm.	
2.	Name of person responding to the survey		
3.	Interviewer: note sex of respondent here.	Male…… Female……	1 2
4.	Title/ position of person responding to the survey *(to facilitate follow-up if needed)*		
5.	What is the cadre or qualification of the manager of this facility?		1 2 3 4 888
6.	Facility phone number		
7.	Facility email address		
8.	Ownership of Facility	Private for Profit…… CHAM…… NGO…… MoH…… Other (specify) _____	1 2 3 4 888
9.	Type of Facility	Maternity…… Health Centre……	1 2

		Dispensary……..	3
		Clinic……..	4
		Hospital……..	5
		Other (specify)	888
		_____	
10.	Does the facility have access to safe water? (water source within 500 meters of health facility)	Yes……..	1
		No……..	2
11.	Does the facility have electricity?	Yes……..	1
		No……..	2
12.	Facility operating times (use 24-hour clock) Probe for the official non-emergency operating times.	Monday: _____ to _____	
		Tuesday: _____ to _____	
		Wednesday: _____ to _____	
		Thursday: _____ to _____	
		Friday: _____ to _____	
		Saturday: _____ to _____	
		Sunday: _____ to _____	
13.	Is this facility affiliated with any association or network or franchise?	Yes……..	1
		No…….. (Skip to Q15)	2
14.	What organizations is this facility affiliated with? *(Interviewer: Read each option and circle all that apply. Multiple responses allowed.)*	CHAM……..	1
		BlueStar……..	2
		PSI……..	3
		MASM……..	4
		FPAM……..	5
		BLM……..	6
		Other (specify)	888
		_____	
15.	Is your facility registered to accept private medical insurance schemes clients?	Yes……..	1

	Community insurance schemes?	No……(Skip to Q17)	2
16.	If yes, from which private medical scheme(s)?	MASM……	1
		Horizon……	2
		Other (specify) _____	888
17.	Do you provide the following maternal and child health (MCH) services at this facility? END INTERVIEW IF THEY DON'T VACCINATE? OR CONTINUE IF VACCINATION COULD BE OFFERED? *(Interviewer: read all options and circle all that apply. Multiple responses allowed.)*	Antenatal care (ANC)……	1
		Labor and delivery……	2
		Routine Immunizations……	3
		Sick child treatment (IMCI)……	4
		Growth monitoring……	5
		Other (specify) _____	888
Now I would like to ask you specifically about vaccination services for children under 5 years. For each of the following services, please tell me whether the routine service is offered by your facility, and if so, how many days per month the service is provided at the facility, and how many days per month at outreach, if any.			
18.	BCG	# of days per month service is provided at Facility	____
		# of days per month service is provided through outreach	____
19.	DTP-Hib-HepB vaccination (i.e. pentavalent)	# of days per month service is provided at Facility	____
		# of days per month service is provided through outreach	____
20.	Oral Polio Vaccine (OPV)	# of days per month service is provided at Facility	____
		# of days per month service is provided	

		through outreach	____
21.	Pneumococcal Vaccine (PCV13)	# of days per month service is provided at Facility # of days per month service is provided through outreach	____ ____
22.	Rotavirus Vaccine	# of days per month service is provided at Facility # of days per month service is provided through outreach	____ ____
23.	Measles (or MR or MMR) Vaccination	# of days per month service is provided at Facility # of days per month service is provided through outreach	____ ____
24.	Vitamin A	# of days per month service is provided at Facility # of days per month service is provided through outreach	____ ____
25.	Yellow fever	# of days per month service is provided at Facility # of days per month service is provided through outreach	____ ____
26.	Other vaccine (specify) _____	# of days per month service is provided at Facility	____

	_____	# of days per month service is provided through outreach # of days per month service is provided at Facility # of days per month service is provided through outreach	____
27.	On average, how many immunizations in this clinic are given per month by type? *(Interviewer: Probe if necessary. Use actual records if possible; otherwise ask for recall.)*	BCG…… Pentavalent1…… Pentavalent2…… Pentavalent3…… OPV0…… OPV1…… OPV2…… OPV3…… Pneumococcal1…… Pneumococcal2…… Pneumococcal3…… Rotavirus1…… Rotavirus2…… Measles1…… Measles2…… Vitamin A…… Yellow Fever…… Other (specify) _____	____ ____ ____ ____ ____ ____ ____ ____ ____ ____ ____ ____ ____ ____ ____ ____ ____ ____
28.	On average, how many immunizations are given per outreach session per month by type?	BCG…… Pentavalent1…… Pentavalent2……	____ ____ ____

	(Interviewer: Probe if necessary. ***Use actual records*** *if possible; otherwise ask for recall.)*	Pentavalent3……	____
		OPV0……	____
		OPV1……	____
		OPV2……	____
		OPV3……	____
		Pneumococcal1……	____
		Pneumococcal2……	____
		Pneumococcal3……	____
		Rotavirus1……	____
		Rotavirus2……	____
		Measles1……	____
		Measles2……	____
		Vitamin A……	____
		Other (specify) _____	____
Now I would like to ask you specifically about vaccination services for pregnant or lactating women or women of childbearing age. For each of the following services, please tell me whether the service is offered by your facility, and if so, how many days per month the service is provided at the facility, and how many days per month as outreach, if any.			
29.	TETANUS DIPHTHERIA (Td)	# of days per month service is provided at Facility	____
		# of days per month service is provided through outreach	____
		Not provided at this facility……	0
30.	Vitamin A	# of days per month service is provided at Facility	____
		# of days per month service is provided	

		through outreach Not provided at this facility……	____ 0
31.	Other vaccine (specify)	# of days per month service is provided at Facility # of days per month service is provided through outreach Not applicable……	____ ____ 0
32.	On average, how many immunizations in this clinic are given to pregnant or lactating women per month by type? *(Interviewer: Probe if necessary. Use actual records if possible; otherwise ask for recall.)*	Td1…… Td2…… Td3…… Td4…… Td5…… Vitamin A…… Other (specify) _____	____ ____ ____ ____ ____ ____ ____
33.	On average, how many immunizations are given to pregnant or lactating women during *outreach* sessions per month by type? *(Interviewer: Probe if necessary. Use actual records if possible; otherwise ask for recall.)*	Td1…… Td2…… Td3…… Td4…… Td5…… Vitamin A…… Other (specify) _____	____ ____ ____ ____ ____ ____ ____
Now I would like to ask you specifically about vaccination services for adolescent/pre-adolescent girls. For each of the following services, please tell me whether the service is offered by your facility, and if so, how many days per			

month the service is provided at the facility, and how many days per month as outreach, if any.			
34.	Other vaccine (specify)	Yes…… _____ # of days per month service is provided at Facility # of days per month service is provided through outreach No……(skip to Q37)	1 ____ ____ 2
35.	On average, how many immunizations in this clinic are given to adolescent girls in a month by type? *(Interviewer: Probe if necessary. Use actual records if possible; otherwise ask for recall.)*	Other (specify) _____	____
36.	On average, how many immunizations are given to adolescent girls during outreach session in a month by type? *(Interviewer: Probe if necessary. Use actual records YES if possible; otherwise ask for recall.)*	Other (specify) _____	___
37.	Is Hepatitis B vaccine offered to your health workers in your facility?	Yes…… No……(skip to Q39)	1 2
38.	On average, how many Hepatitis B immunizations are given to health workers in a year by type? *(Interviewer: Probe if necessary. Use actual records YES if possible; otherwise*	First Dose…… Second Dose……	___ ___

	ask for recall.)		
Now I would like to ask you specifically about fees charged for vaccination services.			
39.	Do clients pay fees for vaccination services at this facility?	Yes…… No…… (skip to Q46)	
40.	Which fees do clients pay for vaccination services at this facility?	Child health passport Woman health passport Vaccine Vaccination service Syringe Other (specify) _____	1 2 3 4 5 888
41.	Are the vaccination fees at this facility displayed?	Yes…… No…….. Only registration…… Other (specify) _____	1 2 3 888
42.	How much do clients pay per vaccination?	BCG…… Pentavalent…… OPV…… Pneumococcal…… Rotavirus…… Measles…… Tetanus diphtheria (Td)…… Yellow fever…… Other (specify) _____	____ ____ ____ ____ ____ ____ ____ ____ ____
43.	How much do clients pay for the following: Child health passport……		

	Woman health passport…… Vaccination service…… Syringe…… Other (specify)……	_____ _____ _____ _____ _____	
44.	Are fees for vaccination covered by any medical scheme/insurance plan?	Yes…… No……(skip to Q46)	1 2
45.	If yes, what percentage of costs are covered by the medical scheme/insurance plan?	MASM…… Horizon…… Other (specify) _____	___% ___% ___%
Now I would like to ask you specifically about your health personnel.			
46.	What cadre of health worker is administering vaccinations?	Nurse…… Medical Assistant…… HSAs…… AEHO…… Other (specify) _____	1 2 3 4 888
47.	On average, how many health workers work at a vaccination session?	_____	
48.	Has at least one staff member who provides vaccination services at the facility been trained in the last year (12 months) on using new vaccines? (If no, skip to Q51)	Yes…… No…… Don't know……	1 2 999
49.	If yes, how many have been trained?	Number trained in giving new vaccines in last year (12 months)	____
50.	Who conducted the training on new	_____	

	vaccines? (specify) (e.g. MoH, UNICEF, WHO)	Don't know……	999
51.	Have any staff received training on improving vaccine service delivery (not new vaccines) in the last year (12 months)?	Yes…… No……(skip to Q53) Don't know……	1 2 999
52.	1. If yes, how many have been trained? 2. Who conducted the training?	Number trained in vaccination service delivery in the last year (12 months)…… _____ Don't know……	____ 999
Now I would like to ask you specifically about your relationship with the government/local authorities.			
53.	Is the facility registered with a regulatory body?	Yes…… No……(skip to Q56)	1 2
54.	If yes, which body?	Medical Council of Malawi…… Nurses' Council…… Other (specify) _____ Don't Know……	1 2 888 999
55.	When was the last accreditation/authorization visit made to this facility by the Council?	Less than 6 months ago…… Between 6 and 12 months ago…… More than a year ago…… Never…… Choose not to answer……	1 2 3 4 888
56.	Does the Ministry of Health supervise your vaccination activities?	Yes…… No……(skip to Q58)	1 2
57.	How often does the Ministry of Health conduct supervision at this facility?	Monthly…… Quarterly……	1 2

		Every 6 months……	3
		Yearly……	4
		More than a year……	5
		Choose not to answer……	888
58.	Do you send monthly reports on vaccination conducted to district health authorities or headquarters? ASK TO SEE HOW DAILY VACCINATIONS ARE TALLIED, AND HOW MONTHLY FIGURES ARE RECORDED AND REPORTED TO VERIFY ANSWER...	Yes……	1
		No……(skip to Q60)	2
		Other (specify) _____	888
59.	Where do you send the reports?	DHO……	1
		EPI unit……	2
		Zone office……	3
		Other (specify) _____	888
60.	Does the government (and partners) give you vaccines, injection equipment, registers, child health passports, and woman health passports? ASK TO SEE SUPPLY LEDGERS to verify answers.	Vaccines……	1
		Injection equipment (syringes and safety boxes)……	2
		Registers……	3
		Child health passports……	
		Woman health passports……	4
		Other (specify) _____	888
61.	What is the source of your cold chain equipment (refrigerator, cold boxes, etc.)?	MoH……	1
		UNICEF……	2
		Other (specify) _____	888

62.	Do you purchase vaccines?	Yes……	1
		No……..(skip to Section B)	2
63.	If you purchase vaccines, where do you get these from?	Central Medical Stores……	1
		Private pharmacies……	2
		Other (specify)	888
		_____	
		Don't know……	999
64.	What is the price of each vaccine vial:		
	BCG……	_____	
	Pentavalent……	_____	
	OPV……	_____	
	Pneumococcal……	_____	
	Rotavirus……	_____	
	Measles……	_____	
	Tetanus diphtheria (Td) ……	_____	
	Yellow fever……	_____	
	Other (specify)_____	_____	

7. Section B – Vaccine Storage

The following are some questions on the storage of the vaccines:

		Availability	Code
65	Are routine vaccines stored at this health facility?	Yes…… No…… Other (specify) _____	1 2 888
66	From where are the vaccines transported?	National Cold room…… Regional Cold room…… District Cold room…… Local Distributor…… Other (specify) _____ Don't know……	1 2 3 4 888 999
67	Where are the vaccines stored in this facility? (specify location)	EPI room…… Public or environmental Health room…… Other (specify) _____ Don't know……	1 2 888 999
68	What kind of refrigerator or cold box is used to store vaccines at this facility? (If not stored at the facility, skip to Q83)	Ice Liners…… Dometic (Box) …… Freezer (Absorption) …… Compression…… Solar refrigerators…… Other (specify) _____ Don't know……	1 2 3 4 5 888 999
69	What is the source of energy	Electricity……	1

	for the refrigerator?	Battery……	2
		Solar……	3
		Gas……	4
		Kerosene/Paraffin……	5
		Other (specify)	888
		_____	
70	Does the refrigerator have a thermometer or fridge tag or freeze tag?	Thermometer……	1
		Fridge tag……	2
		Freeze tag……	3
71	What is the source of funding for purchasing the cold chain equipment in this facility (refrigerator)?	Government……	1
		Purchased by headquarters……	2
		Purchased by other source (specify)	888
		_____	
		Don't know……	999
72	What is the source of funding for running costs of cold chain equipment?	Government……	1
		Headquarters……	2
		Other source (specify)	888
		_____	
		Don't know……	999

Interviewer instructions: Check whether the following vaccines are in stock. For each vaccine, attempt to directly observe whether it is in stock. If this is not possible, ask whether it is in stock. If it is not in stock, ask whether they provide the vaccine but are out of stock.

		Availability	Code
73	BCG	In stock (observed)	1
		In stock (reported)	2
		Not available now but available at other times	3
		Not stocked	4

74	Pentavalent	In stock (observed) In stock (reported) Not available now but available at other times Not stocked	1 2 3 4
75	OPV	In stock (observed) In stock (reported) Not available now but available at other times Not stocked	1 2 3 4
76	Pneumococcal (PCV13)	In stock (observed) In stock (reported) Not available now but available at other times Not stocked	1 2 3 4
77	Rotavirus	In stock (observed) In stock (reported) Not available now but available at other times Not stocked	1 2 3 4
78	Measles	In stock (observed) In stock (reported) Not available now but available at other times Not stocked	1 2 3 4
79	Measles-rubella (or MMR)	In stock (observed) In stock (reported) Not available now but available at other times Not stocked	1 2 3 4
80	Tetanus diphtheria (Td)	In stock (observed)	1

		In stock (reported) Not available now but available at other times Not stocked	2 3 4
81	Other vaccine (specify)_____	In stock (observed) In stock (reported) Not available now but available at other times Not stocked	1 2 3 4
82	Vitamin A (not stored in refrigerator)	In stock (observed) In stock (reported) Not available now but available at other times Not stocked	1 2 3 4
83	Interview finish time Use 24-hour time)	hh.mm	

This is the end of our questionnaire. Thank you for taking the time to respond to our questions. We appreciate your contribution!