Role of Private Sector Providers in Benin National Immunization Program

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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. To learn more about the private sector's provision of vaccination service, Abt Associates is conducting a three-country case study on the role of the private sector in routine immunization provision. This report is on the case study in Benin.

The study team surveyed health providers at fifty private and ten public facilities on their provision of routine immunization services in three southern departments of Benin using stratified random sampling: Atlantique, Littoral, and Oueme. They took the sampling frame from the 2014 Private Sector Census of Abt's Strengthening of Health Outcomes through the Private Sector Project. The team also conducted 300 exit interviews, five at each health facility in the sample. The sampled health facilities included 35 private for-profits, nine faith-based, and six non-governmental organizations (NGOs) with ten public health facilities for comparison.

Results

We estimated that private health facilities provide 7.8% of vaccinations in Benin annually – with private for-profit facilities conducting 5.1%, FBOs providing 2.3%, and NGOs providing 0.4%. Most of the vaccines administered by private health providers are in the national immunization schedule, but some providers also provide vaccines outside of the national EPI schedule. The most commonly administered non-EPI vaccines are measles-mumps-rubella and typhoid fever.

While there were more private for-profit facilities that provided vaccination services than FBOs or NGOs, FBOs administered the most vaccines on average monthly, followed by for-profits. For the pentavalent vaccine, for example, the median number of monthly vaccinations ranged from 15 at FBOs to 10 and 8 at private for-profits and NGOs, respectively. In contrast, public facilities provided more than two times as many monthly vaccinations at their facilities as private facilities.

The MoH (EPI) is currently providing several types of support for vaccination services at private facilities, ranging from free provision of vaccines and injection supplies to training on the introduction of new vaccines and supervision. The collaboration between the MoH and faith-based health facilities is particularly strong.

The MoH provided some types of program support less frequently to private for-profit and nonprofit facilities- i.e., training on improving vaccination service delivery, provision of cold chain equipment, and supervision of for-profit facilities. The private facilities reported receiving training on improving vaccination service delivery less often than the introduction of new vaccines – ranging from 50% for NGOs to 77% for for-profits. The MoH provided cold chain equipment (at no charge) to less than half of private facilities – i.e., 44% of FBOs, 14% of for-profits, and 0% of NGOs so that many facilities have to seek other sources for this equipment. Also, only about half of for-profits and NGOs do not store vaccines at their facilities, which could lower access to vaccines including quality of services.

Some 64% of exit interview respondents reported paying fees for vaccination – 35% for vaccination cards, 30% for services, 9% for syringes, and 3% for vaccines. Clients at for-profits and NGOs reported paying more fees for vaccination services – 79% and 33%, respectively, than at other facilities. However, some clients also reported that they paid fees for services at FBOs (10%) and public facilities (18%).

Total estimated private expenditures for 2017 were 396 million FCFA ($716,462), or 0.2% of 2014 national private expenditures on health (Institute for Health Metrics website). The largest private

expenditures were for fees on vaccination services (44.2%), followed by expenditures on non-EPI vaccines (43.0%). Other expenditures were for syringes (6.9%).

Policy Implications

There are potential policy implications of these findings on the private sector role in immunization in Benin. These range from recognizing the importance of the private sector as a partner in immunization service delivery with programmatic implications and developing public private partnerships.

The private sector is providing approximately 7.8% of total vaccinations in Benin. This finding indicates their importance to the immunization program. The MOH/national immunization program should strengthen its partnership with the private sector to ensure that their facilities are offering quality services, particularly to NGOs and for-profits.

Some 44 percent of private expenditures on vaccination are fees for services in both private and public facilities. Gavi and several other international organizations (Commission for Africa, DFID, UNICEF and Save the Children) have policies recommending not charging user fees for vaccination (World Bank and GAVI Brief). Specifically "in the absence of compelling country or regional data unequivocally documenting their value, user fees should not be levied in publicly financed national immunization services." (England 2001) The rationale for having policies against charging is that fees may be a deterrent to the utilization of preventive services such as vaccination. The national immunization program does not regulate vaccination fees among private providers.

The fees that clients are paying for vaccination are 0.2% of total private expenditures. The government should try to track private expenditures on vaccination periodically in their data collection and use information on these expenditures using routine reporting mechanisms to inform their policies on vaccine service delivery and introduction.

The findings on the provision of non-EPI vaccines both in private and public facilities indicate that there the population has demand for vaccines outside of the national schedule. However, it is not clear that health facilities are only administering vaccines that are worthwhile for clients – e.g., Textraxim (DTacP-IPV) is a booster dose and is usually given at the age of four to six years and may not be necessary for adolescents.

People are obtaining vaccinations beyond those included in the national schedule. Doubtless, parents are striving to provide more protection for their children and adolescents. It would be useful to conduct more in-depth interviews with clients to understand better their motivation.

Recommendations

Recommendations for the provision of vaccination in the private sector are the following:

1. The government should consider offering more training on improving vaccination service delivery and on maintaining the cold chain. They should also try to supervise all private providers with vaccination services to ensure high-quality services.
2. The government should consider researching the impact of fees for services on vaccination utilization.
3. The findings suggest that clients are dissatisfied with the waiting time and worker attitude/responsiveness to questions. Some training on interpersonal skills could improve the reception at public facilities.

4. The national immunization program may want to consider providing more information to the public about the use of different vaccines, both EPI and non-EPI, to inform them about the benefits.
5. The government should consider monitoring the sale of commercial vaccines to ensure that these are administered to the correct target populations.
6. More research (e.g in-depth interviews and KAP studies) on why clients are interested in getting these non-EPI vaccines would be informative to the government in their decision-making on introducing and regulating new vaccines.
7. The government should try to track private expenditures on vaccination periodically in their data collection using routine reporting mechanisms. They should use information on these expenditures to inform their policies on vaccine service delivery and introduction. Government could also initiate private public partnership models that will demonstrate better utilization of data to improve immunization coverage.

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1. Background

1.1 Country Characteristics

Benin has a border with Togo to the west, Nigeria to the east, and Burkina Faso and Niger to the north. Benin is a low-income country according to the World Bank income group classification. It had a per capita gross national income of $820 and per capita gross domestic product (GDP) of $789 in 2016 (data.worldbank.org 2017). The World Bank projects Benin's GDP growth will accelerate to 5.4% in 2017, from 2.1% in 2015 and 4.0% in 2016 (www.worldbank.org/benin 2017).

As of 2016, Benin had an estimated population of 10.9 million that was forty-four percent urban, had forty-three percent of the population under 15 years of age (see Table 1), and a life expectancy at birth of 61 years (see Table 1). It is more urban than Sub-Saharan Africa as a whole but has a similar percent of persons under the age of 15 and life expectancy. Its infant and child mortality (63 and 100, respectively – are higher than the sub-Saharan average (World Bank Data).

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

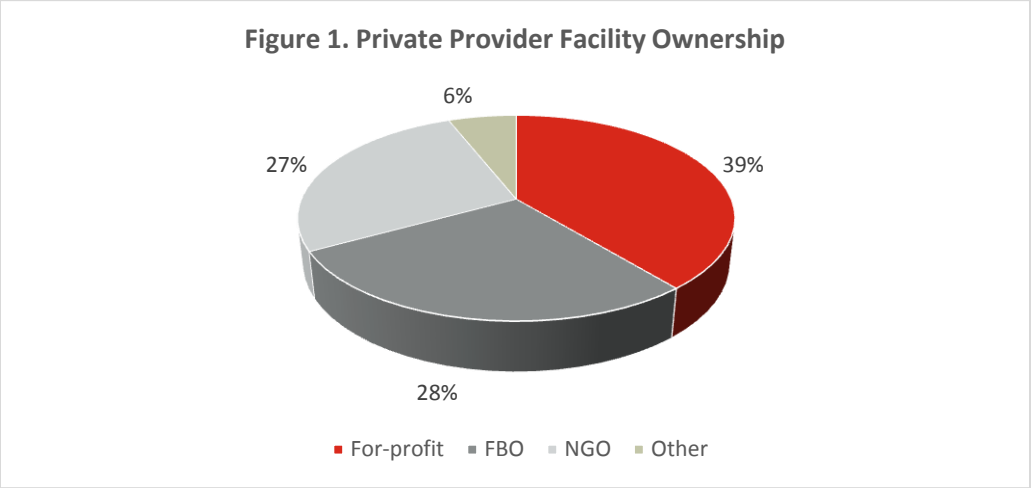
	Benin	Sub-Saharan Africa
Life Expectancy at Birth (2015)	60.6	60
Urbanization (2016)	44%	37.4%
Percent of Population 1-14 years (2015)	43%	43%
Infant Mortality Rate (2016)	63	53
Child Mortality Rate (2016)	100	78

Source: data.worldbank.org

The 2014 Benin private health sector Census (Carmona 2014)[1] conducted by Abt's Strengthening Health Outcomes through the Private Sector (SHOPS) Project provided information on the extent and characteristics of its service delivery. In this analysis, the study team distinguished faith-based organizations (FBOs) from other non-governmental organizations (NGOs) since the government considers FBOs an extension of their services while its collaboration with NGOs is less strong.

The private health system consisted of 2,850 health providers: for-profit facilities (39%), FBOs (28%), NGOs (27%), and other (6%) in the 2014 Census. Private providers play a prominent role in the provision of family planning methods and maternal health. The 2011 Benin Demographic and Health Survey found that 43% and 12% of survey respondents obtained modern contraceptive methods and delivery services, in the private sector, respectively (2011 Benin DHS).

[1] Abt's Strengthening Health Outcomes through the Private Sector (SHOPS) Project conducted censuses of private sector facilities in several LMICs such as Malawi, Nigeria and Benin.



The 2014 SHOPS Census (Carmona 2014) revealed that for-profit health facilities were primarily in the south while FBOs and NGOs were found throughout the country, particularly in the interior. Approximately 52% of facilities were in southern departments in 2014. Table 2 shows that the majority of private health facilities were nurse's offices, medical offices, maternities[2], and NGO clinics. Less than half of the facilities in rural areas had access to running water and electricity.

Table 2. Type of Facility and Services Offered at Private Health Facilities

Type of Structure	Number	Percent
Nurse-led office	1,066	43%
Medical office	456	19%
Maternity	275	11%
Clinic	271	11%
NGO clinic	198	8%
Hospital	40	2%
Medical specialist's office	33	1.3%
Specialist clinic	31	1.3%
Group medical office	22	0.9%
Dental office	22	0.9%
Other	48	1.9%
Total	2,462	100.0%

Source: Carmona 2014

[2] Maternities are facilities that specialize in in caring for women while they are pregnant and during childbirth.

Table 3 shows that, in 2013, most private facilities offered child curative care (94%) (Carmona 2014) and prenatal care and delivery (75%), but only 18% offered vaccination services.

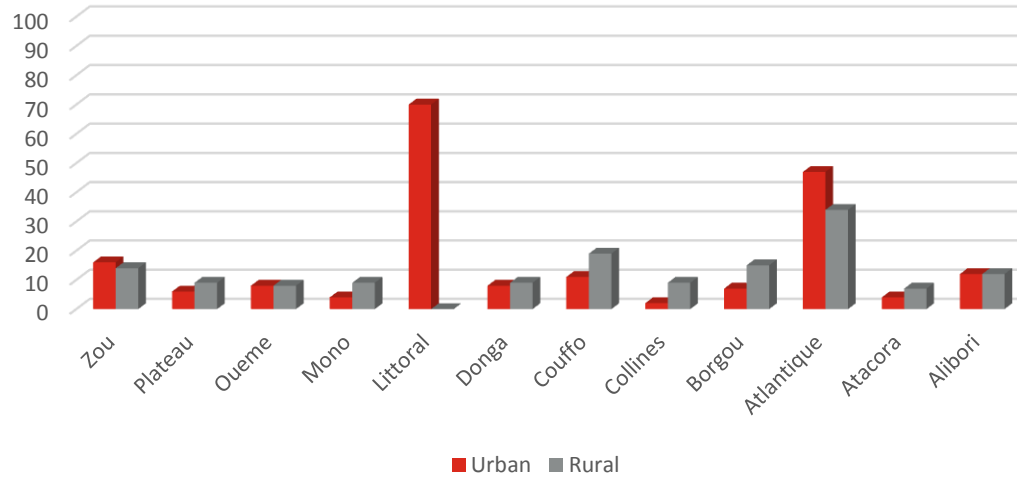
Table 3. Health Services Available at Private Facilities

Service	#	Percentage
Child curative Care	1,776	94%
Prenatal Care	1,409	75%
Birth delivery	1,401	74%
Neonatal and post-natal care	1,271	67%
Growth monitoring	987	52%
Nutrition monitoring	900	48%
Emergency obstetrical care	463	25%
PMTCT	356	19%
Vaccination	337	18%
Other	83	4%

Source: Carmona 2014

Overall, the Abt Census found that 45% of private facilities were in urban areas. However, the percentage of private facilities that provided vaccination services in urban areas was higher (57%) than for all private facilities. Figure 2 shows that the percentage of facilities in urban areas varied widely by the department, from 0 in Littoral to 34 in Atlantique department.

Figure 2. Urban/Rural Distribution of Private Facilities with Vaccination Services by Department (#)



Source: Benin Private Sector Census 2014

Among the 337 private facilities that provided vaccination service, 258 were private for-profit, 57 were FBO, and 22 were NGO.

1.2 National Immunization Program

Table 4 shows the two measures of routine immunization coverage by antigen: 2016 WHO-UNICEF measures and the most recent 2013 MICS survey estimates.

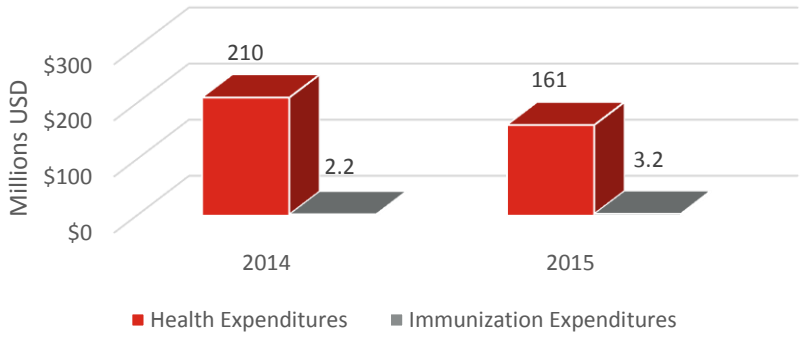
Table 4. National Immunization Coverage for Benin, 2016 WHO-UNICEF and MICS Survey

Vaccine	2016 WHO-UNICEF Coverage (Dose #)	2013 Coverage MICS Survey (Dose #)
BCG	96 %	90
DTP-Hib-HepB (pentavalent)	86 % (1) 82 % (3)	86% (1) 74% (3)
OPV	78 % (3)	64% (3)
IPV	62%	NA
PCV	75% (3)	67% (3)
Measles	74%	NA
Yellow Fever	78%	70%
Tetanus Toxoid	85% (2)	85% (2)

Source: apps.who.int/immunization_monitoring/globalsummary

Figure 3 shows that government expenditures on immunization have been a small percentage of government health expenditures. They were approximately 1% and 2% of government health expenditures in 2014 and 2015, respectively. Note that data are not available for other years.

Figure 3. Government Health and Immunization Expenditures in Benin, USD millions, 2014-2015



Source: Abt Associates 2017

1.3 Purpose and Scope of the Study

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 sometimes immunization service delivery in the private-for-profit sector is associated with poor performance based on vaccination standards of practice due to lack of training, quality standards, and program 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).

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 Benin.

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

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

2. Methods

The study team surveyed health providers at fifty private and ten public facilities on their provision of immunization services in three departments of Benin: Atlantique, Littoral, and Oueme. The sample size was determined assuming a 95% confidence interval and precision level of 10%. The team chose these three departments since there is a high concentration of private health facilities found in each area. The team also conducted 300 exit interviews, five at each health facility in the sample.

The study team adapted the facility survey from the SHOPS project instruments and included 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.

2.1 Sampling

The team used stratified random sampling to select health facilities identified in the 2014 private sector census (Carmona 2014) in the three departments. That is, they stratified by the department and then by the type of facility - 1) medical centers, including private health offices, 2) private medical clinics, 3) maternities and specialist clinics, and 4) private hospitals. They then randomly selected facilities for the sample from these groups. Because several private facilities were no longer functioning or no longer provided vaccination, the team had to make some replacements from the sampling frame list of facilities. For the exit interviews, the data collectors interviewed the first five clients that were eligible for the survey.

The data collection took place in nineteen arrondissements in the three departments. The study team sampled fewer facilities in Oueme since many of the facilities from the 2014 census had closed, no longer provided vaccinations or had moved.[3] Table 5 shows characteristics of the sample. The majority (82%) of the facilities were in urban areas: 100% in Littoral, 65% in Atlantique, and 67% in Oueme. The sample differed from the 2014 Census since facilities that administered vaccinations were more likely to be in urban areas.

[3] The government also **closed several private facilities in 2016** since they had not satisfied government regulations.

Table 5. Characteristics of Sampled Private Health Facilities

	Urban	Rural	Total
Department			
Atlantique	17 (65%)	9 (35%)	26 (100%)
Littoral	28 (100%)	0 (0%)	28 (100%)
Oueme	4 (67%)	2 (33%)	6 (100%)
Total	**49 (82%)**	**11 (18%)**	**60 (100%)**
Type of Facility			
Public	9 (90%)	1 (10%)	10 (100%)
Private	29 (83%)	6 (17%)	35 (100%)
Faith-based	6 (67%)	3 (33%)	9 (100%)
NGO	5 (83%)	1 (17%)	6 (100%)
Total	**49 (82%)**	**11(18%)**	**60 (100%)**
Facility Levels			
Medical centers, including private health offices	18 (78%)	5 (22%)	23 (100%)
Medical clinics	9 (82%)	2 (18%)	11 (100%)
Maternities and Specialist Clinics	13 (87%)	2 (13%)	15 (100%)
Hospitals (includes polyclinics)	9 (82%)	2 (18%)	11 (100%)
Quintiles of Economic Well-being (2011 DHS)			
	% in Fourth and Fifth Highest Quintiles	**% in Bottom Two Quintiles**	
Atlantique	48.6%	31.2%	**NA**
Littoral	98.2%	0.7%	**NA**
Oueme	56.0%	24.9%	**NA**
Total	**49 (82%)**	**11 (18%)**	**60 (100%)**

Source: Institut National de la Statistique et de l'Analyse Économique (INSAE) et ICF International, 2013. Enquête, Démographique et de Santé du Bénin 2011-2012. Calverton, Maryland, USA : INSAE et ICF International.

The three departments in the sample have higher socio-economic status than the rest of the country. Littoral Department has the highest socio-economic status since over 98% is urban. Thus, these departments are not representative of the rest of the country but rather have populations that are more likely to be able to afford fees for services.

Over half of the sampled private facilities were private for-profit facilities (70%), while the rest were FBOs (18%) and NGOs (12%). Some 56% of the facilities (including public) were larger health facilities – medical centers (38%) and hospitals (18%). The rest of the facilities were smaller clinics such as maternities/ specialist clinics (25%) and medical clinics (18%).

The data collectors interviewed five or more vaccination clients at each facility – i.e., 301 clients in total. Of these, six of the respondents were dropped from the analysis because of the following: two stock outs and four persons not from target populations[4], leaving 295 respondents. The 295 respondents included 209 children, 83 pregnant women, and 3 adolescents (Table 10).

[4] These respondents had come for vaccinations for travel.

Table 6. Characteristics of Exit Interview Respondents

Characteristic	Total	Public	For-profit	FBO	NGO
Person Vaccinated					
Infants	209 (71%)	44 (90%)	109 (63%)	34 (68%)	22 (92%)
Pregnant Women	83 (28%)	4 (8%)	61 (35%)	16 (32%)	2 (8%)
Adolescents	3 (1%)	1 (2%)	2 (1%)	0 (0%)	0 (0%)
Total	**295 (100%)**	**49 (17%)**	**172 (58%)**	**50 (17%)**	**24 (8%)**
Age of Respondent (years)					
Median (mean)	27 (28)	26 (27)	27 (28)	27 (28)	28 (28)
Education					
None	58 (20%)	3 (6%)	41 (24%)	11 (22%)	3 (13%)
Literate	33 (11%)	9 (19%)	20 (12%)	2 (4%)	2 (8%)
Primary	57 (20%)	9 (19%)	25 (15%)	15 (30%)	8 (33%)
Secondary	103 (36%)	21 (44%)	56 (33%)	18 (36%)	8 (33%)
University	39 (13%)	6 (13%)	26 (15%)	4 (8%)	3 (13%)
EPI Vaccinations Received					
BCG	36	6	18	10	2
Pentavalent	123	28	66	17	11
OPV	133	26	70	24	13
IPV	22	6	9	6	0
PCV13	113	23	66	12	12
Measles	26	8	6	3	8
Yellow Fever	28	8	9	3	8
Tetanus Toxoid	91	6	65	18	2
Non-EPI Vaccines Received					
MMR	7	2	5	0	0
Hepatitis A	1	1	0	0	0
Pentaxim	2	0	2	0	0
Typhoid Fever	2	0	2	0	0
Meningitis	2	0	2	0	0
Rouvax (measles)	4	1	3	0	0
Other	1	1	0	0	0

Table 6 shows that the average age of the respondents was 28 with private facility clients slightly older than ones from public facilities. Approximately half of the clients (49%) had secondary or university education, one-fifth had primary education, and one-fifth (20%) had no education. Most respondents were seeking vaccinations in the national schedule for their infants or themselves. However, a small proportion also sought non-EPI vaccinations.

2.2 Analytic Methods

In the analysis, the team analyzed survey data on private sector vaccination through calculation of 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 number of 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.

The 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 is the same as that found in Benin Private Sector Census 2014 (Carmona 2014); 2) divide the private sector vaccination services by the estimate of total vaccinations conducted in Benin. They calculated total vaccination by multiplying vaccine coverage x number of surviving infants by antigen.

The team estimated private expenditures on immunization by type and ownership. Expenditures on vaccinations include vaccination cards, service fees, vaccine fees, and syringes. They estimated total expenditures by multiplying average expenditures by facility service by the number of facilities by ownership (2014 Private Sector Census). 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 Benin's national private 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 for a 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.

3. Results

3.1 Immunization Services offered through the Private Sector

Private sector facilities reported that they are primarily providing vaccination services to children under five and pregnant women, but also provide some vaccinations to adolescents[5]. Table 6 shows the number and proportion of facilities offering EPI and non-EPI vaccines at fixed sites and outreach services by type of facility. Private facilities provide the majority of their vaccination at fixed sites rather than outreach sites. For example, while thirty-five private for-profit facilities provide vaccination at fixed sites, only two facilities (6%) provide vaccinations at outreach sites. Similarly, while six NGO facilities provide vaccinations at fixed sites, only one (17%) provides vaccinations at outreach sites. In contrast, five of the public facilities (50%) are providing vaccinations through outreach.

Table 7. Vaccines Offered by Type of Facility

	Public (n=10)	Private (n=35)	FBO (n=9)	NGO (n=6)
Provide infant vaccines through fixed sites				
Vaccines in EPI schedule				
BCG	10 (100%)	23 (66%)	6 (75%)*	6 (100%)
Pentavalent	10 (100%)	30 (86%)	8 (100%)*	6 (100%)
OPV	10 (100%)	30 (86%)	8 (100%)*	6 (100%)
IPV	9 (90%)	26 (74%)	8 (100%)*	4 (67%)
Measles	10 (100%)	22 (63%)	8 (100%)*	5 (83%)
Pneumococcal13	10 (100%)	30 (86%)	8 (100%)*	6 (100%)
Yellow Fever	10 (100%)	19 (54%)	8 (100%)*	5 (83%)
Vaccines outside of EPI schedule				
MMR	3 (30%)	8 (23%)	2 (22%)	2 (33%)
Hepatitis A	1 (10%)	3 (9%)	1 (11%)	1 (17%)
Pentaxim	1 (10%)	5 (14%)	2 (22%)	0 (0%)
Typhoid	2 (20%)	6 (17%)	2 (22%)	2 (33%)
Pneu23	1 (10%)	4 (11%)	2 (22%)	2 (33%)
Tetaxim	1 (10%)	4 (11%)	1 (11%)	0 (0%)
Euvax	0 (0%)	2 (6%)	0 (0%)	0 (0%)
Meningococcal	1 (10%)	1 (3%)	2 (22%)	0 (0%)
Provide Infant Vaccines through Outreach Sites				
BCG	4 (40%)	1 (3%)	0 (0%)	1 (17%)
Pentavalent	5 (50%)	2 (6%)	0 (0%)	1 (17%)
OPV	5 (50%)	2 (6%)	0 (0%)	1 (17%)
IPV	5 (50%)	2 (6%)	0 (0%)	1 (17%)
Measles	5 (50%)	2 (6%)	0 (0%)	1 (17%)
PCV13	5 (50%)	2 (6%)	0 (0%)	1 (17%)
Yellow Fever	5 (50%)	1 (3%)	0 (0%)	1 (17%)
Provide vaccines to pregnant women through fixed sites				
TT	10 (100%)	29 (83%)	9 (100%)	6 (100%)
Hepatitis B	0 (0%)	1 (3%)	1 (11%)	0 (0%)

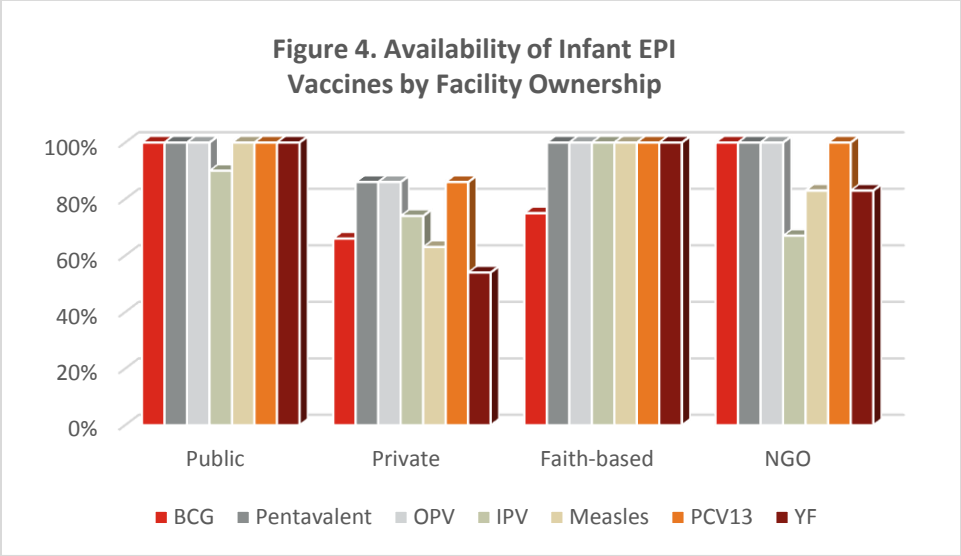
[5] Note that some vaccines are sold to adults for travel as well.

	Public (n=10)	Private (n=35)	FBO (n=9)	NGO (n=6)
Provide vaccines to pregnant women through outreach sites				
TT	5 (50%)	1 (3%)	0 (0%)	1 (17%)
Provide Adolescent Vaccines through Fixed Sites				
Textaxim	2 (20%)	4 (11%)	1 (11%)	0 (0%)
Dultavax	2 (20%)	4 (11%)	1 (11%)	0 (0%)
Tetanus	4 (40%)	8 (22%)	2 (22%)	2 (33%)
Other vaccines	2 (20%)	2 (6%)	1 (11%)	0 (0%)

*The faith-based facility, a maternity that does not provide infant vaccinations, was removed from this calculation.

Figure 4 shows the availability of EPI infant vaccines at private facilities – i.e., the proportion of facilities that provide EPI vaccines for infants by antigen. All eight of the FBOs[6] provide all of the EPI vaccines except for BCG (six of the eight provide BCG vaccine). At NGO facilities, vaccines required for infants younger than six months are available (except for IPV). However, some NGOs do not have the vaccines scheduled at nine months (measles and yellow fever).

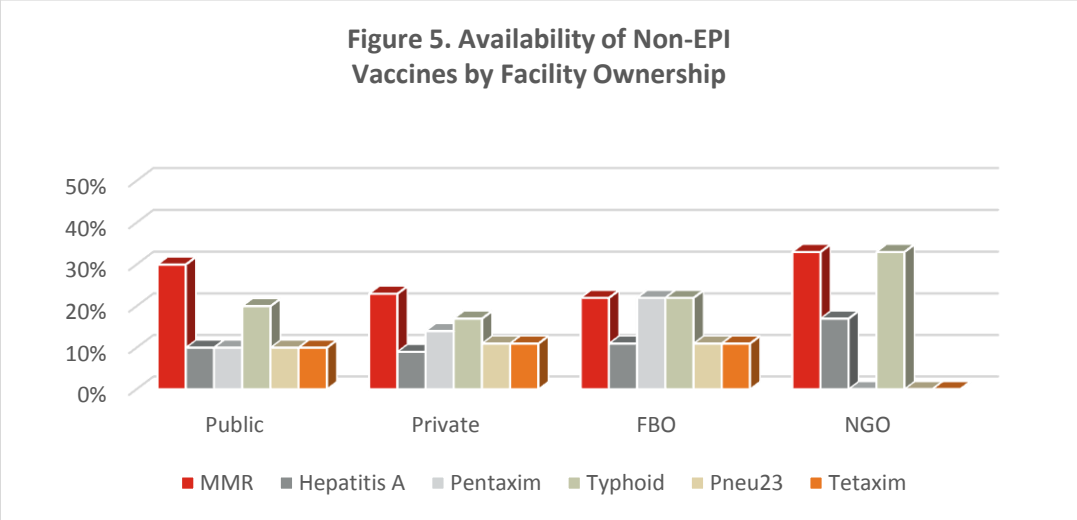
Private for-profit facilities offer most scheduled vaccines for infants between one and four months (pentavalent, OPV, and PCV13) but were less likely to offer vaccines in the EPI schedule at birth and nine months (BCG, measles and yellow fever vaccines) (65%).



Some private facilities and a few public facilities are also offering commercial vaccines not in the national vaccination schedule (non-EPI). These commercial vaccines are obtained from pharmaceutical companies as well as wholesalers. The most common commercial vaccine administered is MMR (measles-mumps-rubella vaccine), from 22% of FBOs to 33 % of NGOs. The next most commonly administered commercial vaccine is typhoid vaccine, from 17% of private for-profits to 33% of NGOs. Health facilities also provide some non-EPI vaccines to adolescents – Textaxim, Dultavax, and Tetanus.

[6] One of the FBOs is a maternity and does not offer vaccines for infants.

Figure 5 show that a small number of facilities are administering commercial vaccines outside of the EPI program. These commercial vaccines are available at private as well as public facilities.



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

Table 7 shows the median and mean monthly service volume at private facilities at fixed sites. The service volume was highest at FBOs, followed by for-profits. For the pentavalent vaccine, for example, the median number of monthly services ranged from 15 at FBOs to 10 and 8 at for-profits and NGOs, respectively. In contrast, public facilities provided more than two times as many monthly vaccinations at their facilities as private facilities.

Table 7. Monthly Median and Mean No. of children and pregnant women vaccinated in fixed Sites

Vaccine	Public	For-Profit	Faith-based	NGO
Fixed Sites				
BCG	33 (51)	10 (14)	10 (16)	6 (8)
Pentavalent	48 (90)	10 (17)	15 (24)	8 (11)
OPV	48 (108)	10 (19)	13 (25)	17.5 (16)
IPV	24 (54)	5 (7)	12 (13)	3.5 (7)
PCV13	74 (111)	10 (15)	34.5 (32)	8 (11)
Measles	19 (48)	9 (11)	7.5 (11)	2.5 (4)
Yellow fever	19 (49)	9 (12)	7.5 (11)	2.5 (4)
TT	40 (56)	10 (16)	20 (21)	10 (9)
Non-NIP Vaccines				
MMR	5 (6) ***	3.5 (5)******	3.5 (4) **	1(1) **
Hepatitis A	5 (5)*	1 (1) ***	1 (1) **	0
Pentaxim	5 (5) *	1 (2.8) *****	2 (2) **	0
Typhoid Fever	5 (5) *	3 (4) *****	4 (4) **	1 (1) **
Pneu23	6 (6) *	3 (3) *****	3 (3) **	1(1) **
Tetaxim	2 (2) *	2 (2) ****	2(2) **	0
Meningite (+Meningo/ VAM)	1(1) *	3(3) ***	2(2) **	0

*= (n=1), ** = (n=2), ***=(n=3), ****=(n=4), *****=(n=5), ******= (n=8)

The monthly service volume for non-EPI vaccines at fixed sites was relatively low at private facilities. For MMR, for example, eight for-profit facilities administered 3.5 vaccines monthly, two FBOs administered 3.5 vaccines, and two NGOs administered one vaccine. Three public facilities also administered five MMR vaccinations monthly.

Table 8 shows that service volume for EPI vaccines is relatively low at private facilities at outreach sites. For the pentavalent vaccine, for example, one for-profit and one NGO provide five and four vaccinations monthly, respectively.

Table 8. Monthly Median and Mean No. of Service Utilization at Outreach Sites

Vaccine	Public	For-Profit	Faith-based	NGO
Outreach Sites				
BCG	53 (89) ***	5 (5) *	0	0
Pentavalent	70 (116) ***	5(5) *	0	4(4) *
OPV	110 (136) ***	5(5) *	0	4(4) *
IPV	4 (82) ***	0	0	0
PCV13	70 (116) ***	0	0	4(4) *
Measles	44 (102) ***	2 (2) *	0	0
Yellow Fever	44 (97) ***	0	0	0
TT	53 (52) ***	14 (14)* *	40 (40) *	8 (8) *

*= (n=1), **= (n=2), ***= (n=4)

3.3 Coordination between Private Sector and Government on Provision of Government Services in Benin

The MoH does not have formal contracts with private providers but provides support for vaccination. Table 9 shows indicators of coordination between the MoH (EPI) and private sector facilities. The MoH provides the following types of support to private sector facilities for the provision of vaccination services: vaccines, injection supplies (e.g., needles and syringes) and training to vaccinators to most facilities. The MoH provided vaccines in thirty-three out of thirty-five and injection supplies to thirty-two out of thirty-five private for-profit facilities, respectively.

Table 9. Indicators of Coordination between MoH and Private Sector

	Public (n=10)	Private (n=35)	FBO (n=9)	NGO (n=6)
Gets Vaccines from MoH				
Yes	10 (100%)	33 (94%)	9(100%)	6(100%)
No	0 (0%)	1 (3%)	0(0%)	0(0%)
Get injection supplies from MoH				
Yes	10 (100%)	32 (91%)	9(100%)	6(100%)
No	0(0%)	1 (3%)	0(0%)	0(0%)
Vaccines Stored at Facility	10 (100%)	19 (54%)	8 (89%)	3 (50%)
Source of cold chain equipment*				
MoH	10 (100%)	5 (14%)	4 (44%)	0 (0%)
Headquarters	0(0%)	12 (34%)	2 (22%)	3 (50%)
Facility	0(0%)	1 (3%)	2 (22%)	0 (0%)
Private facility staff received MoH training on:				
New Vaccines	10 (100%)	27 (77%)	7 (78%)	4 (67%)
Vaccination Delivery	9 (90%)	27 (77%)	6 (67%)	1 (17%)

	Public (n=10)	Private (n=35)	FBO (n=9)	NGO (n=6)
Facility sends monthly reports to				
Health zone	10 (100%)	31 (89%)	9 (100%)	6 (100%)
Other	3 (30%)	2 (6%)	2 (22%)	1 (17%)
MoH supervises facility	9 (90%)	29 (83%)	9 (100%)	6 (100%)

*Refrigerators and freezers for storing vaccines

The MoH only partially financed cold chain equipment for private facilities that stored vaccines: 15% of for-profit facilities, 44% of FBOs, and no NGOs. Most private facilities obtained their vaccines from their franchise headquarters or purchased the equipment themselves.

The MoH also provided training to a majority of private facilities on new vaccines and improving new vaccines. It provided training on new vaccines to 77%, 78%, and 67% of private for-profits, FBOs, and NGOs. The MoH provided training on improving vaccination delivery to 77% and 67% of for-profits and FBOs, respectively, but only to 17% of NGOs.

3.4 Vaccination Service Quality

Table 10 shows indicators of vaccination service quality by facility ownership: accreditation, training, supervision, cold chain, and availability of vaccines. Note that to be authorized to administer vaccinations in Benin, a private facility must undergo the following process: 1) it must demonstrate to the public health authorities that there is a need for an additional provider to offer vaccination services; and 2) the national immunization programme must verify that the private provider staff are qualified to provide vaccination services. Although not specifically for immunization, private providers must undergo an accreditation process[7] with the MOH to be authorized to provide health services (URC 2017). Most sampled private facilities were accredited by the MoH, except for two for-profit facilities.

- As noted above, staff in most facilities received training on vaccine introduction and improving vaccination service delivery in the last two years; NGO staff was less likely to have received training.
- The MoH supervised most private facilities, except for six for-profits (17%).
- Most FBOs stored vaccines at their facilities (89%), while only 54% and 50% of for-profits and NGOs, respectively, stored vaccines. In facilities that stored vaccines, most had WHO pre-qualified refrigerators for storage. However, three refrigerators at for-profits (16%) and one at an NGO (17%) were not WHO pre-qualified, and may not be maintaining the cold chain sufficiently.
- As mentioned above, availability of vaccines is better at FBOs and NGOs than at for-profits.

[7] Private facilities submit paperwork to register their health facility to the National Directorate of Public Health (DNSP) of the MOH. Health facilities that pass the paperwork review are visited by a DNSP delegation which applies a checklist to them. After that, there is an agreement to register the facilities which pass the field visit.

Table 10. Measures of Service Quality

	Public (n=10)	For-Profit (n=35)	Faith-based (n=9)	NGO (n=6)
Facility is Accredited	NA	33 (94%)	9 (100%)	6 (100%)
Stores vaccines at facility	10 (100%)	19 (54%)	8 (89%)	3 (50%)
Type of Refrigerator				
WHO PQS	10	16	7	2
Non-PQS	0	3	0	1
Don't Know	0	0	1	0
MoH supervises facility	9 (90%)	29 (83%)	9 (100%)	6 (100%)
Most recent supervision from MoH				
<6 months	7 (70%)	21 (60%)	7 (78%)	2 (33%)
6-12 months	2 (20%)	7 (20%)	2 (6%)	3 (50%)
>1 year	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Don't know	1 (10%)	1 (3%)	0 (0%)	1 (17%)

PQS = Prequalified Devices for procurement

Another indicator of service quality is whether clients are satisfied with the services that they received. Table 11 shows some measures of client satisfaction at health facilities based on responses to the exit interviews: responsiveness of health workers to questions, average waiting time for vaccination services, dissatisfaction with services, and being at the facility closest to home.

- Most clients felt that they received answers to their questions by health workers, although 13% and 9% at NGOs and private for-profits, respectively, reported that they had not received responses. In contrast, more clients at public facilities (20%) reported not receiving responses to their questions than at private facilities.
- Median waiting time was highest at NGOs and FBOs and lowest at for-profit facilities. The waiting time at public facilities was the same as NGOs, although the mean time was greater than that of NGOs.
- Overall, clients were most dissatisfied with longer waiting times, followed by lack of explanation on vaccination. Clients at NGOs were also more dissatisfied with the lack of explanation on vaccination (67%) than with waiting times (21%).
- Private facility clients were less likely to be at the facility nearest their home than public facility clients, suggesting that they traveled further to get to private facilities. Clients were less likely to be at the facility closest to their home if they were at NGOs or FBOs. The main reasons that clients did not go to the facility closest to their home were [poor] worker attitude and poor availability of medicines.

Table 11. Indicators of Client Satisfaction from Exit Interviews in Benin

Characteristic	Total (n=295)	Public (n=49)	For-profit (n=172)	FBO (n=50)	NGO (n=24)
Health Worker Responded to questions					
Yes	261 (89%)	38 (78%)	153 (89%)	47 (94%)	21 (88%)
No	28 (10%)	10 (20%)	15 (9%)	0 (0%)	3 (13%)
Don't know	3 (1%)	1 (2%)	1 (1%)	1 (2%)	0 (0%)
Waiting Time					
Median (Mean) Minutes	30 (44)	38 (65)	20 (32)	35 (61)	38 (43)

Characteristic	Total (n=295)	Public (n=49)	For-profit (n=172)	FBO (n=50)	NGO (n=24)
Dissatisfaction Facility Services					
Waiting time	73 (26%)	24 (49%)	33 (16%)	11 (22%)	5 (21%)
Possibility of Discussing Problems	25 (9%)	11 (22%)	10 (6%)	0	4 (17%)
Amount of Explanation	35 (12%)	11 (22%)	16 (9%)	0	16 (67%)
Availability of Vaccines	9 (3%)	2 (4%)	7 (4%)	0	0 (0%)
Days that Service is available	17 (6%)	0 (0%)	12 (7%)	0	5 (21%)
How well treated	5 (2%)	2 (4%)	2 (1%)	0	1 (4%)
Cost of Services	25 (9%)	5 (10%)	12 (7%)	7 (14%)	1 (4%)
Is the health facility the closest to your home?					
Yes	215 (74%)	44 (90%)	128 (75%)	30 (60%)	13 (57%)
If no, what is the reason?					
Hours of service	15 (19%)	1 (2%)	11 (6%)	3 (6%)	0 (0%)
Bad reputation	13 (16%)	1 (2%)	5 (3%)	5 (10%)	2 (8%)
Don't like facility health workers	10 (13%)	0 (0%)	8 (5%)	2 (4%)	0 (0%)
Poor availability of medicines	17 (21%)	1 (2%)	6 (3%)	7 (14%)	3 (13%)
High costs	9 (11%)	0 (0%)	8 (5%)	1 (2%)	0 (0%)
Worker Attitude	42 (53%)	3 (6%)	23 (13%)	13 (26%)	3 (13%)
No vaccination services	3 (4%)	0 (0%)	1 (1%)	0 (0%)	2 (8%)
Slow services	2 (3%)	0 (0%)	2(1%)	0 (0%)	0 (0%)

3.5 Expenditures on Immunization in the Private Sector in Benin

Table 12 shows that most health facilities charge fees for vaccination and these fees are for vaccination cards, services, non-EPI vaccines, and syringes.

- Most private facility providers reported charging for vaccination books, ranging from 56% at FBOs, 77% at for-profits, and 100% at NGOs.
- Private facilities reported charging for vaccination services, ranging from 11% at FBOs to 40% at for-profits.
- About a tenth of private for-profit facilities (11%) reported charging for non-EPI vaccines. One public facility (10%) also reported charging for non-EPI vaccines.
- Some private facilities were also charging for syringes – 11% at FBOs and 17% at for-profits. One public facility also reported charging for syringes.

Health providers reported charging a median fee of 100 FCFA ($0.18) for vaccination cards. For vaccination services, providers reported that they are charging median fees of 150 FCFA at NGOs to 200 FCFA at FBOs and for-profits.

Table 12. Official Fees Charged for Vaccination by Facility Type

# Facilities charging for the following:	Public (n=10)	For-Profit (n=35)	Faith-based (n=9)	NGO (n=6)	Total
Vaccination Card	7 (70%)	27 (77%)	5 (56%)	6 (100%)	45 (75%)
Non-EPI Vaccines	1 (10%)	4 (11%)*	0 (0%)	0 (0%)	5 (8%)
Service	0 (0%)	14 (40%)	1 (11%)	2 (33%)	17(28%)
Syringe	1 (10%)	6 (17%)	1 (11%)	0 (0%)	8 (13%)

# Facilities charging for the following:	Public (n=10)	For-Profit (n=35)	Faith-based (n=9)	NGO (n=6)	Total
Fees Charged (median (mean))					
Vaccination Card	100 (167)	100 (293)	100 (210)	100 (117)	
Service	0	200 (292)	200 (200)	150 (150)	
Non-EPI Vaccines	MMR: 7,005 Hep A: 4,000 Typh: 3,000 Pneu23: 8,250 Meningitis: 2,000	MMR: 7,500 Hep A: 4,450 Pentaxim: 21,000 Typh: 5,000 Pneu23: 8,750 Tetraxim: 9,300 Meningitis: 6,000 Dultavax: 8,175	MMR: 7,500 Pentaxim: 20,500 Typhoid: 3,500 Pneu23: 8,500 Meningitis: 1,500	MMR: 7,500 Typh: 8,000 Pneu23: 8,500	
Syringe	100 (100)	100 (100)	50 (50)	0 (0)	

*This percentage may be low because not all facilities offer non-NIP vaccines. Source: Private Sector Immunization Facility Questionnaire

The median fees for non-EPI vaccines charged by different types of facilities are similar for some vaccines – MMR and Hepatitis A – and range from 7005 FCFA to 7500 FCFA and 4000 FCFA – 4,450 FCFA, respectively. On the other hand, the fees reported by private facilities varied more for typhoid and meningitis vaccines - from 3,000 FCFA – 5,000 FCFA for typhoid and 1,500 – 6,000 for meningitis vaccine.

Table 13 shows the fees that clients paid at facilities. Some 35% paid for vaccination cards, 30% for the vaccination services, 9% for syringes, and 3% for vaccines. Respondents were more likely to pay for vaccination if they were at private for-profit (70%) and NGOs (100%) than at FBOs (48%). However, slightly less than half of the respondents at public facilities (45%) also paid for vaccination cards, services, and syringes.

Clients reported considerable variation in the fees that they paid and those fees were often higher than those reported by health providers:

- Vaccination Card: median payment ranged from 100 FCFA at NGOs, 200 FCFA at for-profits, and 300 FCFA at FBOs
- Vaccination Service: median payment ranged from 100 FCFA at FBOs (10%), 200 FCFA at NGOs (79%), and 300 FCFA at for-profits (33%). Some 18% of public facility clients also paid service fees.
- Syringes: median payment of 100 FCFA at all types of facilities
- Non-EPI Vaccines: median payment of 7500 FCFA at fixed sites to 8025 FCFA at outreach sites, respectively

Table 13. Client's Payment of Fees Paid (2017 FCFA)

Service Received or Fee Paid	Response (n=295)	Public (n=49)	Private (n=172)	FBO (n=50)	NGO (n=24)
Beneficiary of a Prepaid Plan or Insurance					
Yes	13 (4%)	1	12	0	0
Don't Know	11 (4%)	4	7	0	0

Service Received or Fee Paid	Response (n=295)	Public (n=49)	Private (n=172)	FBO (n=50)	NGO (n=24)
Paid Fee for Vaccination at Facility					
Yes	190 (64%)	22 (45%)	120 (70%)	24 (48%)	24 (100%)
What was paid for?					
Vaccination Card	104 (35%)	12 (24%)	73 (42%)	15 (30%)	4 (17%)
Service	89 (30%)	9 (18%)	56 (33%)	5 (10%)	19 (79%)
Syringe	28 (9%)	1 (2%)	18 (10%)	4 (8%)	4 (17%)
Non-EPI Vaccine in Fixed Site*	6 (2%)	0 (0%)	6 (3%)	0 (0%)	0 (0%)
Non-EPI Vaccine through Outreach**	4 (1%)	0 (0%)	4 (2%)	0 (0%)	0 (0%)
How much was paid? Median (Mean)	100 (300)				
Vaccination Card	200 (312)	100 (100)	200 (363)	300 (203)	100 (100)
Service	100 (107)	300 (244)	300 (348)	100 (100)	200 (295)
Syringe	7500 (5486)	100 (100)	100 (111)	100 (100)	100 (100)
Non-EPI Vaccine in Fixed Site*	8025 (7763)	0 (0)	7500 (5486)	0 (0)	0 (0)
Non-EPI Vaccine through Outreach		0 (0)	8025 (7763)	0 (0)	0 (0)

Note: 100 FCFA = $0.18

3.6 The Proportion of Immunizations Provided through the Private Sector in Benin

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 14 shows the estimated number of vaccinations provided through the private sector in Benin – 279,801, assuming the same number of private health facilities as found during the 2014 Private Sector Census (Carmona 2014). The proportion of immunizations provided through the private sector is 7.8% of total vaccinations in the country.

Table 14. Proportion of Vaccinations provided through the Private Sector

	Private For-Profit Vaccination	FBO	NGO	Total Private	Est. Target Pop Vaccinees*	% Private Share
BCG	20,876	5,130	1,584	27,590	362,700	7.6%
Pentavalent	27,068	10,260	2,288	39,616	325,080 279,720	4.4%
OPV	27,068	8,892	4,796	40,756	325,080 279,720	4.5%
IPV	11,455	8,208	619	20,282	302,400	7.3%
PCV13	26,626	23,598	2,288	52,512	325,080 279,720	5.8%
Measles	17,631	5,130	548	23,409	238,140	9.8%
Yellow Fever	15,047	5,130	548	20,724	264,600	7.8%
TT	28,173	13,680	2,999	44,853	NA	13.1%
MMR	2,477	2,394	87	4,973	NA	NA
Typhoid Fever	1,579	602	87	2,268	NA	NA
Hepatitis A	279	75	NA	354	NA	NA
Pentaxim	433	NA	NA	433	NA	NA
Pneu23	1,022	NA	87	1,109	NA	NA
Tetraxim	681	NA	NA	681	NA	NA

	Private For-Profit Vaccination	FBO	NGO	Total Private	Est. Target Pop Vaccinees*	% Private Share
Meningitis	279	NA	NA	279	NA	NA
TOTAL	**180,809**	**83,099**	**15,931**	**279,839**	NA	**7.8%**
%	**5.1%**	**2.3%**	**0.4%**	**7.8%**		

Source: apps.who.int/immunization_monitoring/globalsummary *Assumes multiply MICS coverage by target population

The team also varied the number of private for-profit facilities since some had closed in the past year. Assuming that the number of for-profits were reduced by 20%, the proportion of vaccinations delivered through the private sector would decline to 6.8%.

3.7 Expenditures and Personnel Time Spent on Vaccination in the Private Sector

As mentioned in the Methods Section, we also estimated the total private expenditures on vaccination. Note that we included private expenditures on vaccination by clients in public facilities. Table 15 shows the estimated total private expenditures on vaccination in both private and public facilities. Total estimated expenditures were 398 million FCFA ($716,462). The largest private expenditures were for fees on vaccination services (44.2%), followed by expenditures on vaccines outside of the EPI schedule (43.0%). Smaller expenditures were for syringes (6.8%) and vaccination cards (5.9%). The proportion of private expenditures compared to national health spending and private health spending in Benin is 0.07% and 0.18%, respectively.

Table 15.Estimate of Private Expenditures on Vaccination in Benin (in FCFA)

	Public (millions)	Private (millions)	FBO (millions)	NGO (millions)	Total (millions)	
	Amount	Amount	Amount	Amount	Amount	%
Vaccines*						
MMR	46.9	18.7	4.0	0.7	70.2	17.6%
Hepatitis A	8.9	1.2	-	-	10.1	2.5%
Pentaxim	-	9.1	6.2	-	15.3	3.8%
Typhoid	13.4	15.0	2.1	0.7	31.2	7.8%
Pneu23	22.1	8.7	3.8	0.7	35.4	8.9%
Tetaxim	-	6.3	-	-	6.3.	1.6%
Meningitis	0.9	1.6	0.5	-	2.9	0.7%
Card (includes both public and private)	20.6	1.7	1.1	0.2	23.6	5.9%
Service	147.0	27.1	0.9	1.0	176.1	44.2%
Syringe	22.9	3.3	0.8	0.2	27.2	6.8%
Total						
FCFA	282.8	92.7	19.4	3.4	398.4	100%
USD	$0.51	$0.17	$0.035	$0.006	$0.72	
Total Health Spending	NA	NA	NA	NA	$1,100** (2014)	NA
Total Private Spending on Health	NA	NA	NA	NA	$398.8**	NA

% of Private Spending on Immunization to Total National Spending on Health	NA	NA	NA	NA	0.065%	NA
% of Private Spending on Immunization to Total Private Spending on Health	NA	NA	NA	NA	0.18%	NA

*Used amount charged **Institute for Health Metrics

The study team also conducted some sensitivity analysis for this analysis. The percentage of private spending and national expenditure would decline to 0.17% and 0.062%.

3.8 Private Health Facility Personnel Time

We also estimated the value of personnel time spent on immunization by private health facilities. We assumed that each vaccinator spends six minutes on each vaccination (Ngado 2015) and that the salary scale would be that of a nurse (cMYP). With those assumptions, the value of time spent on vaccination would be 39.7 million FCFA ($72,709).

Table 16. Estimated value of personnel time spent on vaccination in Benin in 2017

	Public (millions)	Private (millions)		FBO (millions)	NGO (millions)	Total (millions)
Personnel Time	NA	27.8		10.0	1.9	39.7 FCFA $0.073 USD

4. Discussion

The case study in Benin revealed that the private sector is an important source of vaccination services. Specifically, the private sector is providing 7.8 % of vaccinations annually – with private for-profit facilities conducting 5.1%, FBOs providing 2.3%, and NGOs providing 0.4%. The proportion of private sector vaccinations is greater in Benin than studies have documented in other African countries (Levin & Kaddar 2011): 0.7% in Ethiopia, 0.5 – 3% in Zimbabwe, and 5% in Morocco, although less than Mauritania (10%). However, our recent case study in Malawi conducted by Abt Associates along with Benin the proportion of total vaccinations provided at private facilities is estimated to be 27%. Furthermore, the private sector vaccination in Benin is also less than the proportion found in Asian countries such as India (10 %+), Sri Lanka (15%), and Thailand (10%).

Provision of vaccination services through the private sector is increasing access to vaccination services. Some clients choose to seek vaccination services at private facilities since these have closer proximity, shorter waiting times, and the perception that worker attitude is better. This finding emphasizes the importance of collaboration of MoH with private providers in vaccination to ensure that the facilities are offering high-quality services.

The MoH (EPI) is currently providing several types of support for vaccination services at private facilities, ranging from provision of vaccines and injection supplies to training on the introduction of new vaccines and supervision. The collaboration between the MoH and faith-based health facilities is particularly strong since the MoH views the faith-based organizations as an extension of their services.

The MoH does not provide other types of program support to private facilities as frequently, such as training on improving vaccination service delivery and provision of cold chain equipment to private facilities, particularly to NGOs. In addition, not all private for-profit facilities were supervised. Also, only about half of the for-profits and NGOs are storing vaccines at their facilities, which could lower access to vaccines. The implication of lower support to private facilities on aspects that affect vaccination service quality is that quality at private facilities may be lower than at public facilities, particularly in NGOs and private for-profits.

The findings on client dissatisfaction have implications for the public as well as private vaccination service delivery. Some clients reported that they are dissatisfied with vaccination services, particularly waiting times similar to findings in Olorunsaiye (2017) on barriers to vaccination. They were also dissatisfied with the amount of explanation that they receive at sessions. They were less satisfied with public vaccination services.

4.1 Provision of Vaccines outside of the EPI schedule

Both private and public facilities are providing several vaccines outside of the EPI schedule, ranging from 23% of private for-profit facilities to 33% of NGOs. This finding indicates that there is a demand for non-EPI vaccines and willingness to pay for these vaccines. Some of the demand comes from requirements for persons wishing to travel to other countries, including the annual Muslim Pilgrimage to Mecca trip. However, some demand for vaccines indicates interest in other non-EPI vaccines for prevention of diseases in the country. It would be useful to conduct some in-depth interviews with consumers of these non-EPI vaccines to find out their motivation to inform the government in their decision-making on the introduction of new vaccines.

4.2 Private Expenditures

Private expenditures on vaccination are common in both private and public facilities. More than half of clients reported paying for vaccination services at private for-profit and NGO facilities while

slightly less than half of the clients reported paying at FBOs and public facilities. The fees were higher than those reported in the facility survey, suggesting that some of these may be unofficial. Clients were most likely to pay for vaccination cards (35%) and services (30%) but also paid fees when they obtained vaccines outside of the EPI schedule. However, private expenditures on immunization are relatively low, compared to total private health expenditures (0.2%).

4.3 Policy Implications

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

The private sector is providing approximately 7.8 % of total vaccinations in Benin. This finding indicates their importance to the immunization program. As part of this service delivery, clients are paying for services and private expenditures on immunization are common – i.e., estimated to be 0.2% of total private spending on health. This finding suggests that governments should take private expenditures into account in estimating total program expenditures. That is, they should try to capture these expenditures periodically in their data collection and also could use information on these expenditures to inform their policies on vaccine service delivery and introduction.

The national immunization program should strengthen its partnership with the private sector to ensure that their facilities are offering quality services, particularly to NGOs and for-profits. They should offer more training on improving vaccination service delivery and supervision to private for-profits.

Some 44 percent of private expenditures on vaccination are fees for services in both private and public facilities. Gavi and several other international organizations (Commission for Africa, DFID, UNICEF and Save the Children) have policies of charging no user fees for vaccination (World Bank and GAVI Brief). Specifically "in the absence of compelling country or regional data unequivocally documenting their value, user fees should not be levied in publicly financed national immunization services." (England 2001) The rationale for having policies against charging is that fees may be a deterrent to the utilization of preventive services such as vaccination. The national immunization program does not regulate vaccination fees among private providers.

The findings on the provision of non-EPI vaccines both in private and public vaccines indicate that there is interest in obtaining vaccines outside of the national schedule. However, it is not clear that all health facilities are administering vaccines that are worthwhile for clients – e.g., Tetraxim (DTacP-IPV) is a booster dose and is usually given at the age of four to six years and may not necessary for adolescents.

The population is purchasing non-EPI vaccinations. Doubtless, parents are striving to provide more protection for their children and adolescents. It would be useful to conduct more in-depth interviews with clients to understand better their motivation.

Recommendations for the provision of vaccination in the private sector are the following:

1. The government should consider offering more training on improving vaccination service delivery and on maintaining the cold chain. They should also try to supervise all private providers of vaccination services to ensure high-quality services.
2. The government should consider researching the impact of fees for services on vaccination utilization.

3. The findings suggest that clients are dissatisfied with the waiting time and worker attitude/responsiveness to questions. Some training on interpersonal skills could improve the reception at public facilities.
4. The government should consider monitoring the sale of commercial vaccines to ensure that these are administered to the correct target populations.
5. The national immunization program may want to consider providing more information to the public about the use of different vaccines, both EPI and non-EPI, to inform them about the benefits.
6. More research (e.g. in-depth interviews and KAP studies) on why clients are interested in getting these non-EPI vaccines would be informative to the government in their decision-making on introducing and regulating new vaccines.
7. The government should try to track private expenditures on vaccination periodically in their data collection using routine reporting mechanisms and use information on these expenditures to inform their policies on vaccine service delivery and introduction. Government could also initiate private public partnership models that will demonstrate better utilization of data to improve immunization coverage.

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Appendices

I. National Immunization Program Schedule

Table A1 shows the 2017 national immunization schedule, target population for each vaccine, and coverage, and vaccine coverage. Infants receive seven vaccines: two (BCG and OPV) at birth, three vaccines (DTP-Hib-Hep B, OPV/IPV, and PCV) between one and four months, and two (measles and yellow fever) at 9 months – while pregnant women receive tetanus toxoid at antenatal clinics.

Table A1. National Immunization Schedule for Benin

Vaccine	Schedule	Target Population	WHO-UNICEF Coverage (Dose #)	2013 Coverage MICS Survey
BCG	Birth	Births	96 %	90
DTP-Hib-HepB (pentavalent)	6, 10, 14 weeks	Surviving Infants	86 % (1) 82 % (3)	86 74
OPV	Birth, 6, 10, 14 weeks	Surviving Infants	78 % (3)	64%
IPV	14 weeks	Surviving Infants	62%	NA
PCV	6, 10, 14 weeks	Surviving Infants	75% (3)	67% (3)
Measles	9 months	Surviving Infants	74%	NA
Yellow Fever	9 months	Surviving Infants	78%	70%
Tetanus Toxoid	1st contact pregnancy: +1, +6 months; +1, +1 year.	Pregnant Women	85%	85% (2)

Source: apps.who.int/immunization_monitoring/globalsummary

II. Facility Questionnaire

QUESTIONNAIRE ETABLISSEMENT

Section préliminaire

Date :	|___|___||___|___||___|___|___|___|
Nom de l'enquêteur : _____	Code : |___|___|
Département : _____	Code du département : |___|___|
Commune: _____	Code de la commune: |___|___|___|
Arrondissement: _____	Code de l'arrondissement: |___|___|___|___|___|___|
Milieu urbain ou rural ?	Urbain …… 1 Rural …… 2

SECTION A – QUESTIONS ELEMENTAIRES				
No.	**Questions et filtres**	**Réponses**	**Codes**	**Passer à**
Q01	Nom de la personne répondant au questionnaire	_____		
Q02	Sexe de la personne répondant au questionnaire	Masculin..…… ……1 Féminin…… ……2	[___]	
Q03	Fonction/poste de la personne répondant au questionnaire	Médecin..…… ……..1 Sage-femme..…… …2 Infirmière..…… ……3	[___]	

SECTION A – QUESTIONS ELEMENTAIRES				
No.	**Questions et filtres**	**Réponses**	**Codes**	**Passer à**
		Aide-soignante……4 Autre _____5 (Préciser)		
Q04	Quelle est la catégorie professionnelle du directeur de cet établissement ?	Médecin..……..……..1 Sage-femme..……2 Infirmière..……3 Aide-soignante……4 Autre _____5 (Préciser)	[___]	
Q05	Nom de l'établissement	_____	[___|___]	
Q06	Adresse de l'établissement	_____		
Q07	Numéro de téléphone de l'établissement	[__|__][__|__][__|__][__|__]		
Q08	Adresse électronique de l'établissement	_____		
Q09	Type d'établissement	Hôpital de recours national……1 Hôpital de zone/CHD..……2 Autre hôpital……3 Centre de santé……..4 Dispensaire/maternité isole(e)…5 Polyclinique……..6 Clinique……7 Cabinet de soins……8 Cabinet médical……9 Autre _____10	[___|___]	

SECTION A – QUESTIONS ELEMENTAIRES				
No.	**Questions et filtres**	**Réponses**	**Codes**	**Passer à**
		(Préciser)		
Q10	Type d'organisme exploitant	Public……1 Privé……2 Confessionnel ……3 ONG……...4 Autre _____5 (Préciser)	[___]	
Q11	L'établissement a-t-il accès à l'eau ?	Oui..……1 Non.……0	[___]	**Si 0 →Q13**
Q12	Si non, quelles sont les raisons ?	_____ _____ _____		
Q13	L'établissement a-t-il une source fiable d'électricité 24 heures sur 24 ?	Oui..……1 Non.……0	[___]	**Si 0 →Q15**
Q14	Si non, quelles sont les raisons ?	_____ _____ _____		
Q15	Heures d'ouverture de l'établissement (Utiliser l'horaire de 24 heures)	Lundi : …… Mardi : …… Mercredi : …… Jeudi : …….. Vendredi : ….	**Début** [__|__] [__|__] [__|__] [__|__] [__|__] [__|__] [__|__]	**Fin** [__|__] [__|__] [__|__] [__|__] [__|__] [__|__] [__|__]

SECTION A – QUESTIONS ELEMENTAIRES					
No.	**Questions et filtres**	**Réponses**	**Codes**		**Passer à**
		Samedi : …… ……. Dimanche : ……..			
Q16	Cet établissement est-il affilié à une association, un réseau ou une franchise ?	Oui..…… ……1 Non.…… ……0	[___]		**Si 0 →Q18**
Q17	À quelles organisations cet établissement est-il affilié ? *(**ENQUÊTEUR :** lire les modalités et encercler "1" ou "0" selon la réponse de l'enquêté.)*	ABPF…… …….. ProFAM…… …… AMCES…… …… REBA…… …….. ROAFEM…… …….. ROBS…… …….. PROMUSAF…… …… Autre _____ (Préciser)	**Oui** 1 1 1 1 1 1 1 1 1	**Non** 0 0 0 0 0 0 0 0 0	
Q18	Votre établissement est-il en mesure d'accepter des clients ayant une assurance maladie privée ?	Oui..…… ……1 Non.…… ……0	[___]		**Si 0 →Q20**
Q19	Si oui, quels régimes d'assurance maladie privés ? *(**ENQUÊTEUR :** lire les modalités et encercler "1" ou "0" selon la réponse de l'enquêté.)*	AA…… …… FEDAS…… …… NSIA…… …… GRAS SAVOYE…… …….. GAB……	**Oui** 1 1 1 1 1 1 1 1 1	**Non** 0 0 0 0 0 0 0 0 0	

SECTION A – QUESTIONS ELEMENTAIRES					
No.	**Questions et filtres**	**Réponses**	**Codes**		**Passer à**
		…… COLINA VIE…… …… ARGG…… …… ASCOMA…… …… Autre _____ (Préciser)			
Q20	Fournissez-vous les services de santé maternelle et infantile (SMI) suivants dans cet établissement ? *(**ENQUÊTEUR :** lire les modalités et encercler "1" ou "0" selon la réponse de l'enquêté.)*	Soins prénatals…… ….. Travail et accouchement……. Vaccination…… …… Traitement des enfants malades…….. Suivi de la croissance……. Autre _____ (Préciser) Ne sais pas…… …….	**Oui** 1 1 1 1 1 1 1 1	**Non** 0 0 0 0 0 0 0 0	
À présent, je voudrais vous poser des questions spécifiques sur les services de vaccination pour les enfants de moins de cinq ans. Pour chacun des services suivants, veuillez me dire si le service est fourni par votre établissement, et, dans l'affirmative, *combien de jours par mois* le service est fourni dans l'établissement, et combien de jours par mois il est fourni à l'extérieur de l'établissement, le cas échéant.					
Q21	**BCG**	Nombre de jours par mois en stratégie fixe…….. …… Nombre de jours par mois en stratégie avancée……..… ……. Je ne sais pas……88	[___|___] [___|___] [___|___]		
Q22	**DTC- HepB-Hib (Pentavalent)**	Nombre de jours par mois en stratégie			

SECTION A – QUESTIONS ELEMENTAIRES				
No.	**Questions et filtres**	**Réponses**	**Codes**	**Passer à**
		fixe…….. ……	[___|___]	
		Nombre de jours par mois en stratégie avancée……..… …….	[___|___] [___|___]	
		Je ne sais pas……88		
Q23	**Vaccin antipoliomyélitique oral (VPO)**	Nombre de jours par mois en stratégie fixe…….. ……	[___|___]	
		Nombre de jours par mois en stratégie avancée……..… …….	[___|___] [___|___]	
		Je ne sais pas……88		
Q24	**Vaccin antipoliomyélitique inactivé (VPI)**	Nombre de jours par mois en stratégie fixe…….. ……	[___|___]	
		Nombre de jours par mois en stratégie avancée……..… …….	[___|___] [___|___]	
		Je ne sais pas……88		
Q25	**Vaccin contre la rougeole (VAR)**	Nombre de jours par mois en stratégie fixe…….. ……	[___|___]	
		Nombre de jours par mois en stratégie avancée……..… …….	[___|___] [___|___]	
		Je ne sais pas……88		
Q26	**Vaccin antipneumococcique (PCV-13)**	Nombre de jours par mois en stratégie fixe…….. ……	[___|___]	
		Nombre de jours par mois en stratégie avancée……..… …….	[___|___] [___|___]	

SECTION A – QUESTIONS ELEMENTAIRES				
No.	**Questions et filtres**	**Réponses**	**Codes**	**Passer à**
		Je ne sais pas……88		
Q27	**Fièvre jaune (VAA)**	Nombre de jours par mois en stratégie fixe…….. ……	[___|___]	
		Nombre de jours par mois en stratégie avancée……..…. …….	[___|___] [___|___]	
		Je ne sais pas……88		
	L'ÉTABLISSEMENT ADMINITRE LES VACCINS HORS PEV		L'ÉTABLISSEMENT N'ADMINITRE PAS LES VACCINS HORS PEV → **Q34**	
Q28	**ROR**	Nombre de jours par mois en stratégie fixe…….. ……	[___|___]	
		Nombre de jours par mois en stratégie avancée……..…. …….	[___|___] [___|___]	
		Je ne sais pas……88		
Q29	**Menatra Avaxim (Hépatite A)**	Nombre de jours par mois en stratégie fixe…….. ……	[___|___]	
		Nombre de jours par mois en stratégie avancée……..…. …….	[___|___] [___|___]	
		Je ne sais pas……88		
Q30	**Pentaxim**	Nombre de jours par mois en stratégie fixe…….. ……	[___|___]	
		Nombre de jours par mois en stratégie avancée……..…. …….	[___|___] [___|___]	
		Je ne sais		

SECTION A – QUESTIONS ELEMENTAIRES				
No.	**Questions et filtres**	**Réponses**	**Codes**	**Passer à**
		pas……88		
Q31	**Fièvre typhoïde**	Nombre de jours par mois en stratégie fixe…….. …… Nombre de jours par mois en stratégie avancée……..…. ……. Je ne sais pas……88	[___|___] [___|___] [___|___]	
Q32	**Pneu 23**	Nombre de jours par mois en stratégie fixe…….. …… Nombre de jours par mois en stratégie avancée……..…. ……. Je ne sais pas……88	[___|___] [___|___] [___|___]	
Q33	**Tetaxim**	Nombre de jours par mois en stratégie fixe…….. …… Nombre de jours par mois en stratégie avancée……..…. ……. Je ne sais pas……88	[___|___] [___|___] [___|___]	
Q34	Autre vaccin pour les enfants de moins de cinq ans _____ (Préciser)	Nombre de jours par mois en stratégie fixe…….. …… Nombre de jours par mois en stratégie avancée……..…. ……. Je ne sais pas……88	[___|___] [___|___] [___|___]	
Q35	En moyenne, combien d'enfants de moins de 5 ans sont enregistrés par semaine et par antigène en stratégie fixe?	**Vaccins** **PEV……** BCG……	1 0 [___|___] [___|___]	

SECTION A – QUESTIONS ELEMENTAIRES				
No.	**Questions et filtres**	**Réponses**	**Codes**	**Passer à**
	*(**ENQUÊTEUR :** Utiliser des documents factuels si possible ; sinon, demander au répondant d'essayer de se souvenir.)*	…… DTC- HepB-Hib…… VPO…… …… VPI…… …… Vaccin contre la rougeole (VAR)……. Vaccin antipneumococcique (PCV-13)… Fièvre jaune (VAA)…… **Vaccins hors PEV……** ROR…… …… Menatra Avaxim…… … Pentaxim…… ……. Fièvre typhoïde…… ….. Pneu 23…… …… Tetaxim…… …… Autre _____ (Préciser)	[___|___] [___|___] [___|___] [___|___] [___|___] 1 0 [___|___] [___|___] [___|___] [___|___] [___|___] [___|___] [___|___]	
Q36	En moyenne, combien d'enfants de moins de 5 ans sont enregistrés par semaine et par antigène en stratégie avancée? *(**ENQUÊTEUR :** Utiliser des documents factuels si possible ; sinon, demander au répondant d'essayer de se souvenir.)*	**Vaccins PEV……** BCG…… …… DTC- HepB-Hib…… VPO…… …… VPI……	1 0 [___|___] [___|___] [___|___] [___|___] [___|___] [___|___] [___|___] 1 0	

SECTION A – QUESTIONS ELEMENTAIRES				
No.	**Questions et filtres**	**Réponses**	**Codes**	**Passer à**
		…… Vaccin contre la rougeole (VAR)……. Vaccin antipneumococcique (PCV-13)… Fièvre jaune (VAA)…… **Vaccins hors PEV…….** ROR……. Menatra Avaxim…… Pentaxim…… Fièvre typhoïde…….. Pneu 23…… Tetaxim…… Autre _____ (Préciser)	[___|___] [___|___] [___|___] [___|___] [___|___] [___|___] [___|___]	
À présent, je voudrais vous poser des questions spécifiques sur les services de vaccination pour les femmes enceintes. Pour chacun des services suivants, veuillez me dire si le service est fourni par votre établissement, et, dans l'affirmative, *combien de jours par mois* le service est fourni dans l'établissement, et combien de jours par mois il est fourni à l'extérieur de l'établissement, le cas échéant.				
Q37	**Anatoxine tétanique (VAT)**	Nombre de jours par mois en stratégie fixe…….. Nombre de jours par mois en stratégie avancée…….. Je ne sais pas……88	[___|___] [___|___] [___|___]	
Q38	Autre vaccin pour les femmes	Nombre de jours par mois en stratégie		

SECTION A – QUESTIONS ELEMENTAIRES				
No.	**Questions et filtres**	**Réponses**	**Codes**	**Passer à**
	enceintes _____ (Préciser)	fixe…….. …… Nombre de jours par mois en stratégie avancée……..… ……. Je ne sais pas……88	[___|___] [___|___] [___|___]	
Q39	En moyenne, combien de femmes enceintes sont enregistrées par semaine et par antigène en stratégie fixe?	Anatoxine tétanique (VAT)……. Autre _____ (Préciser)	[___|___] [___|___]	
Q40	En moyenne, combien de femmes enceintes sont enregistrées par semaine et par antigène en stratégie avancée?	Anatoxine tétanique (VAT)……. Autre _____ (Préciser)	[___|___] [___|___]	
À présent, je voudrais vous poser des questions spécifiques sur les services de vaccination pour les adolescentes et les préadolescentes. Pour chacun des services suivants, veuillez me dire si le service est fourni par votre établissement, et, dans l'affirmative, *combien de jours par mois* le service est fourni dans l'établissement, et combien de jours par mois il est fourni à l'extérieur de l'établissement, le cas échéant.				
Q41	Administrez-vous dans l'établissement les vaccins pour les adolescentes et les préadolescentes	Oui..…… ……1 Non.…… ……0	[___]	**Si 0 →Q48**
Q42	**Tetraxim**	Nombre de jours par mois en stratégie fixe…….. …… Nombre de jours par mois en stratégie avancée……..… ……. Je ne sais pas……88	[___|___] [___|___] [___|___]	
Q43	**Dultavax**	Nombre de jours par mois en stratégie fixe…….. …… Nombre de jours par mois en stratégie avancée……..… …….	[___|___] [___|___] [___|___]	

SECTION A – QUESTIONS ELEMENTAIRES				
No.	**Questions et filtres**	**Réponses**	**Codes**	**Passer à**
		Je ne sais pas……88		
Q44	**Tétanos**	Nombre de jours par mois en stratégie fixe…….. ……	[___|___]	
		Nombre de jours par mois en stratégie avancée……..…. …….	[___|___] [___|___]	
		Je ne sais pas……88		
Q45	Autre vaccin pour les adolescentes et les préadolescentes _____ (Préciser)	Nombre de jours par mois en stratégie fixe…….. ……	[___|___]	
		Nombre de jours par mois en stratégie avancée……..…. …….	[___|___] [___|___]	
		Je ne sais pas……88		
Q46	En moyenne, combien d'adolescents ou de préadolescents sont enregistrés par semaine et par antigène en stratégie fixe?	Tetaxim ……..…… …….	[___|___]	
		Dultavax …..…… …..	[___|___]	
		Tétanos …… ……..	[___|___]	
		Adacel polio …….……..	[___|___]	
		Autre _____ (Préciser)	[___|___]	
Q47	En moyenne, combien d'adolescents ou de préadolescents sont enregistrés par semaine et par antigène en stratégie avancée?	Tetaxim ……..…… …….	[___|___]	
		Dultavax …..…… …..	[___|___]	
		Tétanos ……	[___|___]	

SECTION A – QUESTIONS ELEMENTAIRES				
No.	**Questions et filtres**	**Réponses**	**Codes**	**Passer à**
		…….. Adacel polio …….. Autre _____ (Préciser)		
Q48	Y a-t-il d'autres vaccins administrés dans l'établissement ?	Oui..…… ……1 Non.…… ……0	[___]	**Si 0 →Q50**
Q49	Préciser les autres vaccins	Autre 1 _____ (Préciser) Tranche d'âge recevant ce vaccin …… Autre 2 _____ (Préciser) Tranche d'âge recevant ce vaccin …… Autre 3 _____ (Préciser) Tranche d'âge recevant ce vaccin ……	[____-____] ans [____-____] ans [____-____] ans	
À présent, je voudrais vous poser des questions spécifiques sur les tarifs pratiqués pour les services de vaccination.				
Q50	Les clients doivent-ils effectuer des paiements pour les services de vaccination dans cet établissement ?	Pour les droits d'inscription (Carnet)….. Pour le vaccin…… ….. Pour la prestation…… …. Pour la seringue…… …. Ne paye rien…… …. Je ne sais pas…… …	**Oui** / **Non** 1 / 0 1 / 0 1 / 0 1 / 0 1 / 0 1 / 0	

SECTION A – QUESTIONS ELEMENTAIRES				
No.	**Questions et filtres**	**Réponses**	**Codes**	**Passer à**
Q51	Combien les clients doivent-ils payer pour le vaccin des antigènes suivant ? *(**ENQUÊTEUR :** Attention !, si l'établissement n'administre pas les **vaccins hors PEV**, prenez seulement les informations relatives aux vaccins PEV.)*	BCG…… …… DTC- HepB-Hib…… VPO…… …… VPI…… ……..…… VAR…… …… PCV-13…… …….. Fièvre jaune (VAA)…… ROR…… …… Menatra Avaxim…… … Pentaxim…… ……. Fièvre typhoïde…… ….. Pneu 23…… …… Tetaxim…… …… Anatoxine tétanique (VAT)……. Fièvre jaune…… …….. Méningite…… …….. Dultavax…… …….. Tétanos…… …… Adacel polio……	[_____] [_____]	

SECTION A – QUESTIONS ELEMENTAIRES				
No.	**Questions et filtres**	**Réponses**	**Codes**	**Passer à**
		…….. Autre 1 _____ (Préciser) Autre 2 _____ (Préciser) Autre 3 _____ (Préciser) Autre 4 _____ (Préciser) Autre 5 _____ (Préciser) Autre 6 _____ (Préciser)		
Q52	Combien doivent payer les clients pour la prestation de la vaccination ?	[___|___|___|___|___|___|___]		
Q53	Combien doivent payer les clients pour le carnet de vaccination ?	[___|___|___|___|___|___|___]		
Q54	Combien doivent payer les clients pour la seringue ?	[___|___|___|___|___|___|___]		
Q58	Les montants à payer pour les vaccinations sont-ils couverts par des régimes de couverture médicale/d'assurance maladie ?	Oui..……1 Non.……0 Ne sait pas..……88	[___|___]	**Si 0 ou 88 →Q57**
Q56	Si oui, quel pourcentage des coûts est couvert ?	[___|___],[___|___]%		
À présent, je voudrais vous poser des questions spécifiques sur votre personnel de santé.				
Q57	Quel type d'agent de santé administre la vaccination ?	Sage-femme Infirmière Aide-soignante Autre_____ (Préciser)	**Oui** / **Non** 1 / 0 1 / 0 1 / 0 1 / 0	
Q58	Combien d'agent de santé administrent des vaccins ?	[___|___]		
Q59	Est-ce qu'il y a au moins un membre du personnel fournissant des services de vaccination dans l'établissement qui aurait reçu une formation au cours des deux dernières années en matière	Oui..……1 Non.……0	[___|___]	**Si 0 ou 88 →Q62**

SECTION A – QUESTIONS ELEMENTAIRES					
No.	**Questions et filtres**	**Réponses**	**Codes**		**Passer à**
	d'introduction de nouveaux vaccins ?	Ne sait pas..……88			
Q60	Combien de membres du personnel ont reçu une formation en matière d'introduction de nouveaux vaccins ?	[___|___]			
Q61	Qui a effectué la formation en matière d'introduction de nouveaux vaccins ?		**Oui**	**Non**	
		Ministère de la santé…….	1	0	
		PTFs……	1	0	
		……	1	0	
		ONG……	1	0	
		……			
		Siège social……	1	0	
		……			
		Autre _____ (Préciser)			
		Ne sais pas……			
		…..			
Q62	Parmi les membres du personnel, est-ce qu'il y a certains qui ont reçu une formation sur l'amélioration de la fourniture des services de vaccination (pour les vaccins déjà administrés) au cours des deux dernières années ?	Oui..…… ……1 Non…… ……0 Ne sait pas..……88	[___|___]		**Si 0 ou 88 →Q65**
Q63	Combien de membres du personnel ont reçu une formation sur l'amélioration de la fourniture des services de vaccination ?	[___|___]			
Q64	Qui a effectué la formation sur l'amélioration de la fourniture des services de vaccination ?		**Oui**	**Non**	
		Ministère de la santé…….	1	0	
		PTFs……	1	0	
		……	1	0	
		ONG……	1	0	
		……			
		Siège social……	1	0	
		……			
		Autre _____ (Préciser)			

SECTION A – QUESTIONS ELEMENTAIRES					
No.	**Questions et filtres**	**Réponses**	**Codes**		**Passer à**
		Ne sais pas……			
À présent, je voudrais vous poser des questions spécifiques sur votre relation avec le gouvernement					
Q65	L'établissement a-t-il une autorisation d'ouverture ?	Oui..……1 Non……0 Centre public……99 Ne sait pas..……88	[___|___]		
Q66	Quand a eu lieu le dernier contrôle par le Ministère de la Santé dans cet établissement ?	Il y a moins de 6 mois……1 Il y a entre 6 et 12 mois……2 Il y a plus d'un an……3 Jamais……4 Je préfère ne pas répondre……..5 Je ne sais pas……88	[___|___]		
Q67	Le Ministère de la Santé supervise-t-il vos activités de vaccination ?	Oui..……1 Non……0 Ne sait pas..……88	[___|___]		**Si 0 ou 88 →Q69**
Q68	Si oui, à quelle fréquence par an ?	[___|___]			
Q69	Envoyez-vous des rapports mensuels des activités de vaccination au Système National d'Information et de Gestion Sanitaire (SNIGS) ?	Oui..……1 Non……0 Ne sait pas..……88	[___|___]		**Si 0 ou 88 →Q71**
Q70	Où envoyez-vous les rapports ?		**Oui**	**Non**	
		Zone sanitaire……	1 1	0 0	

SECTION A – QUESTIONS ELEMENTAIRES					
No.	**Questions et filtres**	**Réponses**	**Codes**		**Passer à**
		…….	1	0	
		Siège social…… ……	1	0	
		Autre _____ (Préciser)			
		Ne sais pas…… ……			
Q71	Le gouvernement vous fournit-il des vaccins et du matériel d'injection ?		**Oui**	**Non**	
		Vaccins…… …….	1	0	
			1	0	
		Matériel d'injection……	1	0	
		Matériel pour la chaîne du froid……	1	0	
		Autre _____ (Préciser)			
		Ne sais pas…… ……			
Q72	Quelle est la source de votre matériel pour la chaîne du froid (réfrigérateur, accumulateur de froids, portes vaccins, etc.)?		**Oui**	**Non**	
		Gouvernement…… ……	1	0	
			1	0	
		Siège social…… ……	1	0	
			1	0	
		Achat à un distributeur……	1	0	
		Autre _____ (Préciser)			
		Ne sais pas…… ……			

SECTION B –STOCKAGE DES VACCINS				
No.	**Questions et filtres**	**Réponses**	**Codes**	**Passer à**
Q73	Des vaccins sont-ils stockés dans cet établissement de santé ?	Oui…… ……1		
		Non…… ……0	[___|___]	**Si 0 ou 88 →Q80**
		Ne sait		

SECTION B –STOCKAGE DES VACCINS					
No.	**Questions et filtres**	**Réponses**	**Codes**		**Passer à**
		pas..……88			
Q74	D'où les vaccins sont-ils transportés ?	Entrepôt national.…..……1 Entrepôt départemental….……2 Entrepôt communal……3 Autre _____4 (Préciser) Ne sait pas..……..……8 8	[___|___]		
Q75	Où les vaccins sont-ils stockés dans cet établissement ? (préciser l'emplacement)	Salle de PEV…… ….. Salle de santé pour les enfants…… Salle de stockage…… . Autre _____ (Préciser) Ne sait pas..……..…… ….. **Oui** 1 1 1 1 1	**Non** 0 0 0 0 0		
Q76	Quel type de réfrigérateur est utilisé pour stocker les vaccins dans cet établissement ?	Réfrigérateur PQS (homologué)…….1 Réfrigérateur Non PQS (Non approprié)…… ……..2 Autre_____3 (Préciser) Ne sait pas..……..……8 8	[___|___]		
Q77	Quelle est la source d'énergie pour le réfrigérateur ?	Électricité…… ……1 Groupe électrogène……2 Solaire avec batterie……3	[___|___]		

SECTION B –STOCKAGE DES VACCINS				
No.	**Questions et filtres**	**Réponses**	**Codes**	**Passer à**
		Solaire sans batterie……4 Autre_____5 (Préciser) Ne sait pas..……..……8 8		
Q78	Le réfrigérateur contient-il des enregistreurs continus des vaccins ? (***Enquêteurs** : Demander à voir l'enregistreur continu)*	Oui..…… ……1 Non.…… ……0 Ne sait pas..……88	[___|___]	
Q79	Quelle est la source de financement du matériel pour la chaîne du froid dans cet établissement (réfrigérateur)?	Gouvernement…… ……1 Achat par le siège social……2 Autre_____3 (Préciser) Ne sait pas..……..……8 8	[___|___]	
Vérifier que les vaccins suivants sont en stock. Pour chaque vaccin, essayez d'observer directement s'il est en stock. Si cela n'est pas possible, demandez s'il est en stock. S'il n'est pas en stock, demandez si l'établissement est actuellement en rupture de stock mais fournit normalement ce vaccin.				
Q80	**BCG**	En stock (observé)……1 En stock (déclaré)……2 En rupture de stock……3	[___|___]	
Q81	**DTC- HepB-Hib**	En stock (observé)……1 En stock (déclaré)……2 En rupture de stock……3	[___|___]	
Q82	**Vaccin antipoliomyélitique oral (VPO)**	En stock (observé)……1 En stock (déclaré)……2 En rupture de	[___|___]	

SECTION B –STOCKAGE DES VACCINS				
No.	**Questions et filtres**	**Réponses**	**Codes**	**Passer à**
		stock……3		
Q83	**Vaccin antipoliomyélitique inactivé (VPI)**	En stock (observé)……1 En stock (déclaré)……2 En rupture de stock……3	[___|___]	
Q84	**Vaccin contre la rougeole (VAR)**	En stock (observé)……1 En stock (déclaré)……2 En rupture de stock……3	[___|___]	
Q85	**Vaccin antipneumococcique (PCV-13)**	En stock (observé)……1 En stock (déclaré)……2 En rupture de stock……3	[___|___]	
Q86	**Fièvre jaune (VAA)**	En stock (observé)……1 En stock (déclaré)……2 En rupture de stock……3	[___|___]	
Q87	**ROR**	En stock (observé)……1 En stock (déclaré)……2 En rupture de stock……3	[___|___]	
Q88	**Menatra Avaxim**	En stock (observé)……1 En stock (déclaré)……2 En rupture de stock……3	[___|___]	
Q89	**Pentaxim**	En stock (observé)……1 En stock	[___|___]	

SECTION B –STOCKAGE DES VACCINS				
No.	**Questions et filtres**	**Réponses**	**Codes**	**Passer à**
		(déclaré)……2 En rupture de stock……3		
Q90	**Fièvre typhoïde**	En stock (observé)……1 En stock (déclaré)……2 En rupture de stock……3	[___|___]	
Q91	**Pneu 23**	En stock (observé)……1 En stock (déclaré)……2 En rupture de stock……3	[___|___]	
Q92	**Tetaxim**	En stock (observé)……1 En stock (déclaré)……2 En rupture de stock……3	[___|___]	
Q93	**Anatoxine tétanique (VAT)**	En stock (observé)……1 En stock (déclaré)……2 En rupture de stock……3	[___|___]	
Q94	**Fièvre jaune**	En stock (observé)……1 En stock (déclaré)……2 En rupture de stock……3	[___|___]	
Q95	**Méningite**	En stock (observé)……1 En stock (déclaré)……2 En rupture de stock……3	[___|___]	
Q96	**Dultavax**	En stock	[___|___]	

SECTION B –STOCKAGE DES VACCINS				
No.	**Questions et filtres**	**Réponses**	**Codes**	**Passer à**
		(observé)……1 En stock (déclaré)……2 En rupture de stock……3		
Q97	**Tétanos**	En stock (observé)……1 En stock (déclaré)……2 En rupture de stock……3	[___|___]	
Q98	**Adacel polio**	En stock (observé)……1 En stock (déclaré)……2 En rupture de stock……3	[___|___]	
Q99	Autre 1 : _____ (Préciser)	En stock (observé)……1 En stock (déclaré)……2 En rupture de stock……3	[___|___]	
Q100	Autre 2 : _____ (Préciser)	En stock (observé)……1 En stock (déclaré)……2 En rupture de stock……3	[___|___]	
Q101	Autre 3 : _____ (Préciser)	En stock (observé)……1 En stock (déclaré)……2 En rupture de stock……3	[___|___]	

SECTION B –PRIX DES VACCINS ET DU MATERIEL D'INJECTION				
No.	**Questions et filtres**	**Réponses**	**Codes**	**Passer à**
Q102	Qui achète les vaccins pour l'établissement (prix de gros) ?	Le siège social ……..……..1 Le	[___|___]	**Si 2 →Fin**

SECTION B –PRIX DES VACCINS ET DU MATERIEL D'INJECTION				
No.	**Questions et filtres**	**Réponses**	**Codes**	**Passer à**
		gouvernement……..…….2 PTFs……..……...3 Autre_____4 (Préciser) Ne sait pas..……..……8 8		
EVALUATION DES COUTS				
	Vaccin	**Présentation (Nombre de doses par flacon)**	**Coût par dose (prix de gros)**	
Q103	BCG	[___|___|___]	[___|___|___|___|___]	
Q104	DTC- HepB-Hib	[___|___|___]	[___|___|___|___|___]	
Q105	Vaccin antipoliomyélitique oral (VPO)	[___|___|___]	[___|___|___|___|___]	
Q106	Vaccin antipoliomyélitique inactivé (VPI)	[___|___|___]	[___|___|___|___|___]	
Q107	Vaccin contre la rougeole (VAR)	[___|___|___]	[___|___|___|___|___]	
Q108	Vaccin antipneumococcique (PCV-13)	[___|___|___]	[___|___|___|___|___]	
Q109	Fièvre jaune (VAA)	[___|___|___]	[___|___|___|___|___]	
Q110	ROR	[___|___|___]	[___|___|___|___|___]	
Q111	Menatra Avaxim	[___|___|___]	[___|___|___|___|___]	
Q112	Pentaxim	[___|___|___]	[___|___|___|___|___]	
Q113	Fièvre typhoïde	[___|___|___]	[___|___|___|___|___]	
Q114	Pneu 23	[___|___|___]	[___|___|___|___|___]	
Q115	Tetaxim	[___|___|___]	[___|___|___|___|___]	
Q116	Anatoxine tétanique (VAT)	[___|___|___]	[___|___|___|___|___]	

SECTION B –PRIX DES VACCINS ET DU MATERIEL D'INJECTION				
No.	**Questions et filtres**	**Réponses**	**Codes**	**Passer à**
Q117	Fièvre jaune	[___|___|___]	[___|___|___|___|___]	
Q118	Méningite	[___|___|___]	[___|___|___|___|___]	
Q119	Dultavax	[___|___|___]	[___|___|___|___|___]	
Q120	Tétanos	[___|___|___]	[___|___|___|___|___]	
Q121	Autre 1 : _____ (Préciser)	[___|___|___]	[___|___|___|___|___]	
Q122	Autre 2 : _____ (Préciser)	[___|___|___]	[___|___|___|___|___]	
Q123	Autre 3 : _____ (Préciser)	[___|___|___]	[___|___|___|___|___]	
	Matériel d'injection	**Présentation (Nombre par boîte)**	**Coût unitaire (prix de gros)**	
Q124	Seringue autobloquante (0,05ml)	[___|___|___]	[___|___|___|___|___]	
Q125	Seringue autobloquante (0,5ml)	[___|___|___]	[___|___|___|___|___]	
Q126	Seringue à reconstitution (2ml)	[___|___|___]	[___|___|___|___|___]	
Q127	Seringue à reconstitution (5ml)	[___|___|___]	[___|___|___|___|___]	
Q128	Boîte de sécurité	[___|___|___]	[___|___|___|___|___]	
Q129	Autre matériel d'injection : _____ (Préciser)	[___|___|___]	[___|___|___|___|___]	
	Autre matériel (à préciser)	**Nombre par emballage**	**Coût unitaire**	
Q130	Autre 1 : _____ (Préciser)	[___|___|___]	[___|___|___|___|___]	
Q131	Autre 2 : _____ (Préciser)	[___|___|___]	[___|___|___|___|___]	
Q132	Autre 3 : _____ (Préciser)	[___|___|___]	[___|___|___|___|___]	

Notez l'heure à laquelle l'entretien termine	[___|___] : [___|___]	**HEURE :** **MINUTE**

Voici la fin de notre questionnaire. Merci beaucoup pour le temps mis à répondre à ces questions. Nous apprécions votre contribution.