ISSN: *2315-7844*
Website: www.arabianjbmr.com/RPAM_index.php
Publisher: *Department of Public Administration Nnamdi Azikiwe University, Awka, Nigeria and Zainab Arabian Research Society for Multidisciplinary Issues Dubai, UAE*

HEALTH PERSONNEL AND THE SUCCESS OF IMMUNIZATION IN NIGERIA: A STUDY OF SELECTED LOCAL GOVERNMENTS AREAS IN KADUNA STATE

Idris, A J
Department of Public Administration, Ahmadu Bello University Zaria
iajamo@abu.edu.ng

Abstract

The study examined the performance of Local Government Councils in Kaduna State of Nigeria as regards immunization services delivery. To achieve this objective the study hypothesized that, the availability and competence of personnel affect the success of immunization program. Both primary and secondary sources of data were utilized. Finding indicated relatively average available of trained and experienced health personnel in most districts visited. This has significantly increased the level of immunization coverage in the three LGs studied. Data gathered were subjected to correlation test using SPSS software. The r- values ranged from 0.923 to 0.956. All r- values were above 0.500. This indicated positive correlation between availability, competence of health personnel and the success of immunization service delivery. Policy implication indicated the need for more highly experienced and trained health personnel at the local level in order to maintain and improve immunization successes.

Keywords: Effectiveness, Health Care, Immunization, Management, Nigeria

Introduction

Globally, 27m children do not receive routine immunization which resulted in the deaths of 2 million children every year (Abdulkarim, 2011). In Nigeria, child immunization remained low over the last decade. Evidence from the National Immunization Council Survey (NICS) in 2003 indicates that the DPT3 coverage was only 80%, with discrepancies from 8.8% in the North Western Nigeria compared with 45.9% in the South East. This has significantly increased the

rate of preventable diseases as a results low routine immunization (NPI, 2007). The results of the 2006 National Immunization Coverage Survey (NICS) placed a national immunization coverage rate of 18.1 percent, ranging from 29.9 percent in the south-west zone to 6.2 percent in the north-west zone. Equally, there are significant regional variations in the coverage of *Bacille Calmette-Guérin* (BCG) vaccine coverage which prevents tuberculosis, from 53.1 percent in the south to 20.5 percent in the north-west (NICS Study Group, 2007).

In spite of the increasing DPT3 coverage from 29% in 2000 to 99% in 2010, one million children still failed to receive all their required vaccines in 2011. Though there is remarkable achievements of 99% reducing poliomyelitis globally, Nigeria still account for the highest prevalence of circulating wild polio virus. The country is among the ten countries with less than 50% vaccines coverage (Abdulkarim, 2011).
Nigeria is a signatory to all global immunisation targets of reaching 80% DPT3 coverage in 80% districts in developing countries by the year 2005 and with MDG4 target of reducing child mortality by two-thirds by the year 2015(NPI, 2007); yet meeting these targets even beyond 2015 is still questionable. Immunization is an important component of primary health care and in routine immunization programs, virtually all vaccines, except oral polio vaccine, is administered parenterally (by injection). Vaccines against six childhood killer diseases are the most important vaccines to public health. Yet, diseases preventable by vaccine account for the deaths of a quarter of the 800,000 child deaths in Nigeria every year (Abdulkarim, 2011).
In Nigeria, the National Program on Immunization (formerly Expanded Program on Immunization) targets eight main childhood diseases: tuberculosis; polio; pertussis; diphtheria; tetanus; measles; hepatitis B; and yellow fever (Feilden Battersby Analysts, 2005).

Routine immunization is provided mostly through the public health system with the three tiers of government (federal, state and Local Government) playing specific and sometimes duplicating roles. The federal government sets national health policies, implements national health programs and coordinates, evaluates; and monitors these health policies and programs. Through the National Program on Immunization, a parastatal of the federal government is responsible for procuring vaccines and distributing them to zonal cold stores. The state government is responsible for distributing vaccines to Local Government central storage facilities and managing state health and other budgets. The state also employs key officials responsible for immunization service provision and coordinates immunization activities within the state. Actual implementation of routine immunization activities is done by primary health care facilities which are managed by the Local Government (Feilden Battersby Analysts, 2005).

Studies (NPHCDA, 2001as cited in WMHCP, 2007; Omoren et-el, 1988:77; Abdulraheem et-el, 2012; Ojifo, 2008) indicated evidence of inadequate and poor quality health personnel in Nigeria. Yet sufficient local knowledge of correlation between adequacy of health personnel and success of immunization is fundamental for sustainable immunization service delivery in Nigeria and Kaduna state in particular. This work has filled this academic lacuna. Upon this background the study intends to ascertain the effects of availability and competence of health personnel on success of immunization program. The study hypothesized that availability and competence of personnel affect the success of immunization program.
Sample Size: To determine the sample size of the population for the study, Yamane's (1967; 886) formula as expressed by Israel (1992;1 – 10) was used as demonstrated below:

$n = \frac{N}{1+N(e)^2}$ Where n = Sample size, N = Total population= 778, e = Level of significance (9%)= (9)2 =(0.0025), n = 778/ 1+778 (0.0025), n= 778/779(0.0025), 778/1.9475 =399. To obtain sample size per each LG: S/Gari: 399/778 was multiplied by285= 0.51285 was multiplied by 285=146. Giwa LG: 399/778 multiply by 310 =0.5285 was multiplied by 310= 159, Kauru: 399/778 was multiplied by 183 = 0.5285; 0.5285 was multiplied by 183= 94.Consequently, the sampling size of the population was drawn from the health personnel is 399 respondents.

Scope of the study: At present, Kaduna state has 23 LGs; but, it will be difficult to study immunization service delivery in all the LGs in the state. To make this research easier and more representative, the scope of the study is limited to three LGs Kaduna state. The rationale behind the choice of this area of the study (North western states of Nigeria) is based on the notion that, it is the most populous geo-political zone in Nigeria, and with poor healthcare status (NPC, 2006; NBS, 2008). Preliminary study has indicated resistance to immunization in the state.

Literature Review

This section reviews the existing related literature on the subject matter of our discussion. Efforts were made to review literature on the key variables related to the study. i.e Health personnel and success of immunization service delivery.

CHEDOC, (2011) Study examined Nigeria's success and remarkable progress on immunization coverage in recent years. The study suggested that it was due to active collaboration with development partners and other stakeholders. The study further related poor health and status in Nigeria to poor PHC infrastructure, lack of morale by the PHC workers and loss of confidence in the health service by the community.

Ojifo's (2008) study examining primary healthcare delivery (including immunization) in Owan East and West LGAs of Edo state with emphasis on the impact of personnel and equipment inadequacies in primary health centers. Empirical evidence revealed that there are 30 primary health centers in the area. Four doctors serviced these centers which were inadequate to meet the primary health care needs of the population. Only few centers were adequately equipped with medical equipment. The implication of this inadequacy has led to several people suffering from different sicknesses and diseases and sometime death. The recommended the transfer of the responsibility PHC service delivery from LG to federal Government.

This recommendation seemed to have caused more problem to the grassroots people than solving it, because of the fact that in spite of the failure of the LG to provide adequate PHC service, local provision is far better and more affordable to the local people because of their closeness and their being more responsive to local demands.

Similar study of statewide assessment on Routine Immunization System in Bauchi and Sokoto States in the Northern Nigeria revealed that approximately 57,063 and 42,510 infants were immunized with DPT3 in Bauchi and Sokoto States respectively. In both states, a shortage of qualified personnel and a mal-distribution of existing staff were observed. Only 44% and 40% of the health personnel were professionals in Bauchi and Sokoto states respectively. Shortage of facilities and irregular schedule for the distribution of vaccine and vaccination supplies in the two states were noticed. Thus the results indicated inadequacy of health (professionals) personnel and other facilities for effective RI in Sokoto and Bauchi states while evidence of Kaduna state is still either not available or none.

A similar empirical investigation by (Oluadare, 2009) listed ignorance and social cost of access to the services, the quality of the immunization service, availability to the remote areas, health

personnel commitment, and consistent availability as reasons that account for the low coverage of immunization in Ekiti state in the southern Nigeria. These findings proved similar results to that of other studies in other parts of the country, except that fear or suspicion on the immunization in the area is either low or absence.

While Path (2003) study indicates that routine immunization in Nigeria are either no longer available or irregular; limited resources for health services and gaps in vaccine storage and distribution added to the challenges of immunization coverage. The study caution that for meaningful success on RI in Nigeria, efforts should be on strengthening vaccine storage, vaccine delivery, and waste management, building health workers' skills in vaccine management, improving systems for delivering supplies to health centers and communities and improving access to immunization for all populations in the region, including difficult-to-reach families living in remote areas. The study explores the state of RI in Nigeria including the main problem associated with the program and provided feasible solution to the problem.

Amidst these literatures, there is no evidence of empirical study on the study area. This research offered a possibility of understanding of factors that affects immunization service delivery. The work also provided a local knowledge of immunization service delivery.

Data Presentation

This section presented data collected from the field. Data were presented in table form and followed by brief explanation.

Table1: Number of Health personnel per LG

Health personnel	Sabon Gari LG	Ratio of pop. Per Health staff (Availability)	Giwa LG	Ratio of pop. Per Health staff (Availability)	Kauru LG	Ratio of pop. Per Health staff (Availability)
CHO	**26**	**1:11033**	**29**	**1:9877**	**12**	**1:14167**
CHEW	**55**	**1: 5216**	**63**	**1:4546**	**71**	**1:2394**
JCHEW	**50**	**1: 5737**	**58**	**1:4938**	**9**	**1:18890**
MW	**20**	**1: 14343**	**NIL**	**NIL**	**NIL**	**NIL**
SN	**15**	**1: 19124**	**12**	**1:23869**	**9**	**1:18890**
EHO	**11**	**1: 26079**	**NIL**	**NIL**	**5**	**1:34002**
EHT	**22**	**1: 13040**	**7**	**1:40918**	**6**	**1:28335**
EHA	**35**	**1: 8196**	**27**	**1:10608**	**6**	**1:28335**
PHAM. TECH	**2**	**1: 143213**	**2**	**1:143214**	**2**	**NIL**
PHAM. ASST	**NIL**	**NIL**	**NIL**	**NIL**	**1**	**1:170008**
LAB. TECH	**6**	**1: 47812**	**9**	**1:31825**	**6**	**1:28335**
LAB. ASST	**2**	**1: 143213**	**3**	**1:95475**	**6**	**1:28335**
Sci. LAB. TECH	**NIL**	**NIL**	**NIL**	**NIL**	**6**	**1:28335**
CHO/PHN	**NIL**	**NIL**	**NIL**	**NIL**	**NIL**	**NIL**
SHA	**35**	**1: 8196**	**NIL**	**NIL**	**13**	**1:13078**
JHA	**6**	**1: 47812**	**63**	**1:4546**	**30**	**1:5667**
MRA	**NIL**	**NIL**	**34**	**1:8424**	**1**	**1:170008**
TOTAL	**285**		**310**		**183**	

Source: PHC Department Sabon Gari, Giwa and Kauru LGs

The table 1 above presents the number of health personnel per LG. Based from the data; CHEW and JCHEW have the highest number of staff in the three LGs studied except in Kauru LG with 9 JCHEW. This indicates that, though there are inadequacy of health personnel, however, number of CHEW and JCHEW (which are the main professionals that are directly administer routing immunization) are averagely adequate compared to other professionals. The table also indicated that the ratio of CHEW per individual in Sabon Gari LG is 1: 5216 compared to 1: 4546 and 1: 2394 for Giwa and Kauru LGs respectively. In the case of JCHEW Giwa has the highest ratio per individual with 1: 4138 followed by Sabon Gari LG with 1: 5737 and Kauru LG with the ratio of 1: 18890.

Table2: Training organization(s) for LG Health Personnel and number of Program(s) Per Year.

S/No	Training organization	Training program	Number of training per year
1	Global Fund	Malaria Control Program	3
2	WHO	Polio Eradication	8
3	PATHS	Monitoring and Evaluation	4
4	SIGHT SERVERS	Mecitizan distribution	2
5	UNICEF		3
6	N-STOP		3
7	UNPA	Family planning	4
8	LGSB		10

Source: PHC Department Sabon Gari, Giwa and Kauru LGs

The table 2 above indicates number of training conducted each year and the training organization. Based on the data, LGSB has the highest (10) number of training, followed by WHO with 8, PATHS and UNPA with 4 each, UNICEF and N-STOP with 3 each, while SIGHT SERVERS has the least (2) number of training each year. This shows that health personnel are well adequately trained every year.

Table 3: Responses on Availability and Competence of Health Personnel

S/N	VARIABLES	RESPONSES	LOCAL GOVERNMENTS			TOTAL
			Sabon Gari	Giwa	Kauru	
1.	How would you describe the adequacy of health personnel in your district/ Community?	High	92(25%)	89(24%)	50(14 %)	231(63%)
		Low	24(7%)	46(12%)	10(3)	80(22%)
		Average	25(7%)	13(4%)	18(5%)	56(15%)
		Total	141(38%)	148(40%)	78(21 %)	367(100%)
2.	Was there adequate training of health personnel in your district/community?	Yes	78(21%)	80(22%)	60(16 %)	218(59%)
		No	32(9%)	46(13%)	9(2%)	87(24%)
		Undecided	31(8%)	22(6%)	9(2%)	62(17%)
		Total	141(38%)	148(40%)	78(21 %)	367(100%)

Source: Researchers' Survey, 2015.

Respondents were asked to express their opinion in respect to adequacy of health personnel in their district/community. The Majority of the respondents 231 representing (63)% described the state of health personnel as high. Out of that figure, 92 (25%) were from Sabon Gari, 89 (24%) and 50 (14%) were from Giwa and Kauru L.Gs respectively. Whereas, a total of 80 (22%) out of 367 (100%) said the adequacy was low. From this figure, 24 (7%) were from Sabon Gari, 46 (13%) and 10 (3%) were from Giwa and Kauru respectively. But 56 (15%) of the respondents described the adequacy of health personnel in their district/community as average. 25 (7%) of that figures were from Sabon Gari, 13 (4%) and 18 (5%) were from Giwa and Kauru L.Gs respectively.

When we asked the staff respondents to expresses their views on whether there was adequate training or not. 218 of the respondents contacted, representing (59%) agreed that there was adequate training. Out of that figure, 78 (21%) of the respondents were from Sabon Gari L.Gs, 80 (22%) and 60 (16.3%) were from Giwa and Kauru respectively. 87(24%) of the respondents representing (24%) said they don't have adequate health personnel. Out of that figure 32 (9%) were from S/Gari, 46 (13%) and 9 (3%) were from Giwa and Kauru L.Gs respectively. A total of 62 (17%) out of 367 (100) were undecided. From this figure, 31 (8%) were from S/Gari, 22 (6%) and 9 (2%) were from Giwa and Kauru LG's respectively.

Table 4: Responses on the Success of Immunization

S/N	VARIABLES	RESPONSES	LOCAL GOVERNMENTS			TOTAL
			Sabon Gari	Giwa	Kauru	
1.	Are there reported cases or outbreaks in your district/community?	Yes	22(6%)	22(6%)	10(2%)	54(15%)
		No	111(30%)	98(27%)	61(16%)	270(74%)
		Undecided	8(2%)	28(6%)	7(2%)	43(11%)
		Total	141(38%)	148(40%)	78(21%)	367(100%)
2.	Are there children dying in your district/community than before?	Yes	13(4%)	43(12%)	38(10%)	94(26%)
		No	113(31%)	89(24%)	52(14%)	254(42%)
		Undecided	7(2%)	3(1%)	9(2%)	19(5%)
		Total	141(38%)	148(40%)	78(21%)	367(100%)
3.	Could you attribute that to immunization?	Yes	86(23%)	80(22%)	51(14%)	217(59%)
		No	26(7%)	30(8%)	9(3%)	65(18%)
		Undecided	29(8%)	38(10%)	18(5%)	85(23%)
		Total	141(38%)	148(40%)	78(21%)	367(100%)

Source: Researchers' Survey, 2015.

The table 4 above presents a level of success of immunization in the three LGs under study, the results indicates that 54 respondents representing 15% testified that there were no reported cases of outbreaks in their districts. Out of that, 13(4%) were from Sabon Gari, 43(12%) and 7(2%) were from Giwa and Kauru LGs. 270(74%) of the respondents said "No". From that figure, 111(30%) were from Sabon Gari, 28(6%) and 7(2%) were from Giwa and Kauru LGs respectively. But 43(11%) of the respondents were undecided on their choice.

To investigate the success of immunization in term of mortality rate, respondents were asked whether children are dying in their communities, the majority of the respondents 254 representing 42% testified said there was no high mortality rate in their communities. Out of that figure, 113(31) were from Sabon Gari, 89(24%) and 54(14%) were from Giwa and Kauru respectively. 19 of the respondents representing 5% were undecided.

To ascertain responses of staff respondents on whether they could attribute the success of reducing child mortality in their communities to immunization, the majority of the respondents

numbering 217(59%) said yes. From that figure, 86(33%) were from Sabon Gari (33%), 80(22%) and 9(3%) were from Giwa and Kauru respectively. 65(18%) of the respondents said "No". Out of that, 26(77%) were from Sabon Gari, 30(8%) and 9(3%) were from Giwa and Kauru respectively. 65 of the respondents representing 85 were undecided on their choice at all.

Table5 : Immunization coverage for some LGs in Kaduna state

S/N	LGAs				DPT-3			OPV3			MEASLES			TT 2+			
		Target Pop	No. Imm	% Coverage	Target Pop	No. Imm	% Coverage	Target Pop	No. Imm	% Coverage	Target Pop	No. Imm	% Coverage	Target Pop	No. Imm	% Coverage	
1	GIWA	10633	4,216	40	10633	4,071	38	10633	3,427	32	10633	5,716	54	14751	4,917	33	
2	KAURU	6311	1,958	31	6311	2,241	36	6311	2,174	34	6311	2,867	45	8755	2,020	23	
3	S/GARI	10649	3,481	33	10649	6,285	59	10649	6,146	58	10649	6,964	65	14774	3,600	24	
2008																	
1	GIWA	10951	6,358	58	10951	3,524	32	10951	3,560	33	10951	4,285	39	15194	6,192	41	
2	KAURA	8510	3,470	41	8510	3,494	41	8510	3,017	35	8510	4,276	50	11807	3,077	26	
3	S/GARI	10968	9,068	83	10968	7,583	69	10968	6,766	62	10968	14,267	130	15217	8,634	57	
2009																	
1	GIWA	11,280	8,122	72	11,280	5,752	51	11,280	6,277	56	11,280	5,693	50	15649	10,025	64	
2	KAURU	6,695	5,598	84	6,695	4,696	70	6,695	4,591	69	6,695	4,085	61	9289	5,204	56	
3	S/GARI	11,298	8,499	75	11,298	6,733	60	11,298	5,554	49	11,298	7,143	63	15674	7,095	45	
2010																	
1	GIWA	11,618	10,932	94	13,125	11,618	9063	78	2,556	31	11,618	8,406	72	11,618	9,101	78	
2	KAURU	6,896	7,219	105	7,997	6,896	6991	101	(95)	13	6,896	5,631	82	6,896	6,353	92	
3	S/GARI	11,636	11,062	95	11,388	11,636	8727	75	2,909	23	11,636	7,759	67	11,636	8,472	73	
2011																	
	LG	BGG Target Pop	No Imm	% coverage	DPT1	DPT3 No imm	% coverage	DPT3 DOR	OPV3 No imm	% coverage	MEASLES			TT 2+ Target Pop	No imm	% Coverage	
1	GIWA	11967	6,369	53	8,685	7,721	65	65	11	6,485	54	32,669	273	16602	7,817	47	
2	Kauru	7103	2,789	39	5,400	4,331	61	61	20	3,696	52	5,335	75	9854	3,719	38	
3	S/Gari	11986	6,970	58	8,158	6,834	57	57	16	5,548	46	22,494	188	16628	10,153	61	
2012																	
		BCG			PENTA3			OPV3		MEASELES			TT 2+				
	LG	Target Pop	No. Imm	%Coverage	Penta 1	Penta3	%Coverage	Penta3 Dor	No Imm	%Coverage	No Imm	% Coverage	Target Pop	No Imm	% Coverag		
1	Giwa	12326	20,269	164	10,848	6,536	53	40	13,331	108	13,677	111	17100	13,445	79		
2	Kauru	7316	8,432	115	5,133	3,827	52	25	5,712	78	5,668	77	10150	4,911	48		
3	S/Gari	12345	15,980	129	9,993	5,180	42	48	10,842	88	13,146	106	17127	12,694	74		
2013																	
1	Giwa	12696	15,582	123	16,482	14,163	112	14	14,505	114	15,996	126	17613	20,267	115		
2	Kauru	7536	8,942	119	9,872	8,253	110	16	8,038	107	9,701	129	10454	8,364	80		
3	S/GariI	12715	14,101	111	14,899	10,823	85	27	10,471	82	14,445	114	17641	18,208	103		
2014																	
								No Immunized				% coverage					
LGA	Total Pop	0-11mths	Surviving Infants	Preg W	BCG	OPV3	Penta 3	Measles	YF	TT2+	BCG	OPV3	Penta 3	Measles	YF	TT2+	
Giwa	362,837	14,513	13,077	18,142	21707	15423	14815	15812	15216	20805	166	118	113	121	116	115	
Kauru	215,362	8,614	7,762	10,768	7103	6216	6474	5985	6087	7072	92	80	83	77	78	66	
S/Gari	363,400	14,536	13,097	18,170	16308	12293	12385	11019	10820	14607	125	94	95	84	83	80	

Source: Kaduna state Ministry of Health, Kaduna state PHC Agency, 2015

The table 5 above revealed that in 2011 Giwa LG recorded the highest percentage of DP3 coverage with 65% followed by Kauru and Sabon Gari LGs with 61% and 57% respectively. The percentage of the coverage in 2012 dropped to 53% in Giwa LG and to 52% and 42% in Kauru and Sabon Gari LGs respectively. In 2013 the percentage appreciated to 112%, 110% and 85% in Giwa, Kauru and Sabon Gari LGs respectively. The percentage increased to 113% and 95% in Giwa and Sabon Gari LGs respectively and slightly decreased in Kauru LG with 95%. While for OPV3 the percentage of immunization coverage in 2010 was 72%, 82% and 67% for Giwa, Kauru and Sabon Gari LGs respectively. The percentage dropped to 54%, 52% and 46% in

Giwa, Kauru and Sabon Gari LGs respectively. The percentage in 2012 appreciated to 103%, 78% and 88% in Giwa, Kauru and Sabon Gari LGs respectively. The percentage for Giwa and Kauru LGs appreciated to 114% and 107% respectively. The percentage for Sabon Gari LG slightly dropped to 87%. In 2004 the percentage for Giwa and Sabon Gari increased to 118% and 94% respectively, but dropped in the case of Kauru LG with 80%. This indicates that the percentage of the immunization coverage has been fluctuating over the years.

Table 6: Trends of infant and under five child mortality rates per 1000 in Kaduna state

Year	Infant mortality	Under five mortality
2003	100	201
2008	75	157
2010	69	128
2011	75	NA
2012	N/A	N/A
2013	69	128
2014	74.9	NA

Source: PARTHS2, 2014

The table 6: above indicates that infant mortality and child mortality rates as at 2003 were 100 and 201 respectively and dropped to 75 and 157 respectively in 2008. The figure again depreciated to 69 and 128 respectively in 2013 and later infant mortality rates appreciated to 74.9 in 2014. This indicates unstable rates over the years.

Table 7: Under five mortality rate in selected LGs councils in Kaduna state

Years	Local Governments		
	S/Gari	Giwa	Kauru
2010	N/A	N/A	N/A
2011	N/A	N/A	N/A
2012	15	60	90.2
2013	7.5	69	71.5
2014	1.1	31.6	25.8

Source: DHIS2, 2015.

The table 7 above presents under-five mortality rate in Sabon Gari, Giwa and Kauru LGs respectively. The data indicate that Kauru LG recorded the highest mortality rate with 90.2 and 71.5 in 2012 and 2013 respectively. The rate later significantly declined to 25.8 in 2014. Giwa LG recorded second position in the ranking of the LGs selected with 60 and 69 in 2012 and 2013 respectively. In 2014 the figure declined to 31.6. Sabon Gari LG recorded the least number of under-five mortality rate with 15 in 2012 and declined to 7.5 and 1.1 in 2013 and 2014 respectively. This indicates that there has been significant decline of the rate of under-five mortality rate in all the three LGs within the period under study.

Findings

The findings of the study indicated that adequate health personnel catered for immunization program in the three LGs studied. This is not to say that there were no shortage of health personnel, but respondents viewed it positively. This study discovered a higher number of health personnel at the LG headquarters than in the suburb centers. These incidences were more in Kauru LG, followed by Giwa and Sabon Gari LGs respectively. This has significant effects on adequate routing services in those areas. The study also discovered a shortage of all categories of staff except CHEW and JCHEW that constitute the majority of health personnel in all the LGs. It is important to note that CHEW and JCHEW are the most important health personnel directly

needed for effective immunization service delivery. However, there are critical shortage of physicians, pharmacists and qualified nurses in most LGs visited.

The results indicated the availability of trained and experienced health personnel in most districts visited. The documents reviewed and the facilities surveyed indicated fairly literate, knowledgeable and trained health personnel in the health centers and the clinics visited. In all the three LGs surveyed, no medical doctor was found; this has proved the inability of the LGs to employ medical doctor in their LGs. The study also found out a shortage of pharmacists in all the LGs visited. The study also found that, on the average, each health personnel was at least trained once in a year by either the state, LGSB, WHO or UNICEF. These findings also indicated that the success of the immunization exercise in the three LGs studied was due to the availability of trained and experienced health personnel.

The survey observed rigorous training of health personnel at the LG level especially on the principle of injection safety. The study confirmed that there are provisions for training of health personnel (at least 1% of the monthly federal allocation is deducted by the Kaduna state ministry of LGs for the training of LGs' staff across the state.

The study equally found that LGs in the state in collaboration with the LGSB conduct training almost every month for categories of staff (not only those who are directly involve in immunization program such CHEW and JCHEW). However trainings that have direct link to immunization are conducted by the development partners (including WHO, UNICEF etcetera).

Test Hypothesis

Ho: The availability and competence of personnel does not affect the success of immunization program

Hi: The availability and competence of personnel affects the success of immunization program

From the hypothesis above the availability and competence of personnel are the independent variables, while success of immunization program is the dependent variable. The responses of both variables were coded in a computer using SPSS software package and presented in table 8 below

Table 8: Correlation Analysis Results for availability and Competence of Personnel and Success of Immunization Program

		Success of immunization
Adequacy of Health personnel	**Pearson Correlation**	**.923****
	Sig. (2-tailed)	**.000**
	N	**367**
Adequate Training of Health personnel in the district/community	**Pearson Correlation**	**.956****
	Sig. (2-tailed)	**.000**
	N	**367**
Success of immunization	**Pearson Correlation**	**1**
	Sig. (2-tailed)	
	N	**367**

****. Correlation is significant at the 0.01 level (2-tailed).**

Decision rule: Reject the null hypothesis and accept the alternate one if the calculated value is greater than critical value. Accept the null hypothesis and reject the alternate one if the calculated value is less than the critical value.

Comparison: The r- values ranged from .923 to 0.956. All r- values were above 0.500. This shows that there is a strong correlation between Availability and Competence of Personnel and Success of Immunization Program in the communities under study. The null hypothesis was therefore ignored and the substantive one that there is relationship between the Availability and Competence of Personnel and Success of Immunization Program adopted. Therefore, availability and competence of personnel contributes to the success of immunization program.

Conclusion and Recommendations: The study examined contribution of adequacy and competency of health personnel on immunization in some selected LGs in Kaduna state. Three LGs were selected from the three senatorial districts in the state. Both primary and secondary data were utilized. The results indicated that increasing success of immunization in the state in terms of immunization coverage was largely due to rigorous training by the LGs and other development partners. The study proved correlation between availability, competence of health personnel and the success of immunization in Kaduna state. The study recommended the need to increase efforts on recruitment and training of health personnel in all LGs in the state so as to maintain and increase success of the immunization program in the future.

References

Abdulkarim, A.A (2011)Vaccines and immunization: The past, present and future in Nigeria. Nigerian Journal of Paediatrics ;38 (4):186 – 194. Available from www.ajol.info/index.php/njp/article/download/72382/61305. 23rd December 2014.

Abdulraheem etel (2012). Primary Health Care Services in Nigeria: Critical Issues and Strategies for Enhancing the use by the Rural Communities.Journal of Public Health and Epidemiology Vol. 4(1), pp. 5-13, Available online at http://www.academicjournals.org/JPHE.

Abdulraheem et-el (2012) Reasons for incomplete vaccination and factors formissed opportunities among rural Nigerian children. In Journal of Public Health and Epidemiology Vol. 3(4), pp. 194-203. Available at http://www.academicjournals.org/jphe

Adeyemo.D.O(2005) Local Government and Health Care Delivery in Nigeria in Nigeria: A Case Study. In Hum Kamla-Raj 2005 J. Hum. Ecol., 18(2): 149-160. Available from www.krepublishers.com/02-jounals/JHE/JHE-18-0-000-000-2005-abst-PDF/JHE-18-2-149-160-2005-1297-Adeyema-D-O/JHE-18-2-14.

Itimi et-el (2012) Community participation and childhood immunization coverage: A comparative study of rural and urban communities of Bayelsa State, south-south Nigeria. Retrieved from www.ispub.com/.../uptake-of-childhood-immunisation-among-mothers-of-under-five-children. 19**,** July 2013.

National Program on Immunization (NPI) (2007) *A Guide for Health Management Teams at Ward/LGA* Levels. Abuja: Federal Government of Nigeria.

Ojifo, O.M (2008) Problems of effective Primary Health Care Delivery in Owan East and West Local Government Areas of Edo State. In the Journal of Social Sciences., Vol.6(1): 69-77. Available from www.krepublishers.com/02-journals/JSS/JSS-16-0-000-000-2008-2008-abs.Text/JSS-16

Oluadare, C (2009). "The Social Determinants of Routine Immunization in Ekiti State of Nigeria", *Kamla-Raj Ethno-Med*, 3(1): 49-56.

PATH (2003) Making Immunization Routine Again: Strengthening Immunization Programmes in Northern Nigeria.

Yamane, T (1967) 'Statistics: An introductory Analysis, 2nd Ed, New York: Harper and Row, in Israel Glenn. D (1992:1) "Sampling evidence of extension program; Impact Program evaluation and organizational Development" The Journal of IFAS University of Florida, FEOD October. Available from http://edis.ifas.ufl.edu/pd006, [Accessed October 09 2012