

Adequacy of PMTCT Facilities for PMTCT Service Delivery in Abia State, Nigeria

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Abstract— Adequacy of PMTCT facilities is paramount for quality PMTCT service delivery. This study was designed and undertaken to determine the adequacy of equipment and materials in the facilities that provide PMTCT services in Abia State. A descriptive cross-sectional survey design was employed for the study. The study targeted the health facilities supported by the Abia State Agency for the Control of AIDS. Out of seventeen (17) Local Government Areas (LGAs) in Abia state, four (4) LGAs were randomly selected for the study and all eighty-one (81) health facilities which provided PMTCT services in the selected LGAs were studied. The facilities constitute 66(74%) primary health facilities, 14(17.3%) secondary health facilities, and only 1(8.6%) tertiary health facility. Instrument for data collection was the checklist which elicited information on the adequacy of the health facilities in relation to health workers, equipment and materials to render PMTCT services. Analysis of data was done using descriptive statistics. The results revealed that only 10(12.3%) health facilities out of the 81 health facilities carry out Caesarean Section. The overall assessment showed that PMTCT service providers in Abia state are not adequate. Only 2(2.5%) of the health facilities had an adequate number of medical doctors and pharmacists. None of the health facilities studied (0%) had the Polymerase Chain Reaction (PCR) machine which is a major requirement for PMTCT service delivery. More facilities 72(88.9%) had adequate supply of HIV test kits and 60(74.1%) had adequate supply of Anti-retroviral drugs. Poor PMTCT service delivery previously reported in Abia State could likely be as a result of the nonavailability of adequate personnel, required, equipment, and materials for optimum PMTCT service delivery. There is a need to give priority attention to this important component of PMTCT service delivery in the state if the desired reduction in mother -to-child transmission of HIV has to be achieved on target.

Index Terms— Adequacy, PMTCT, service-providers, equipment, materials, Nigeria.

I. INTRODUCTION

Mother -to-child transmission (MTCT), also known as vertical transmission, occurs when an HIV positive woman passes the virus to her baby. This can occur during pregnancy, labour, and delivery or breastfeeding (Msellati, Leroy & Lepage, 2002). The most effective means of reducing mother-to-child transmission is to provide fully suppressive antiretroviral therapy (ART) to the mother in the long term, thereby not only reducing the risk of vertical transmission, but also sustaining the life and health of the mother while the

child is growing up. In high-income countries, MTCT has been virtually eliminated due to effective prevention programmes (Preble & Piwoz, 2002). Prevention of mother-to-child transmission (PMTCT) aims at reducing the risk of a mother infecting her child with HIV and starts with primary prevention of the infection in women of childbearing age who are the main vehicles of paediatric HIV transmission. PMTCT services include voluntary counselling, HIV testing, antiretroviral therapy, labour and delivery, caesarean section, early infant diagnosis, family planning, and safer infant feeding counselling. These services were among the services listed by UNAIDS (2000a) as the core package for PMTCT.

To reduce the prevalence of HIV among women of child bearing age, PMTCT programme was initiated. PMTCT exists in different parts of the world including Nigeria. Services which include HIV counselling and testing, ART, obstetric intervention (Caesarean Section), and safer infant feeding (Ioannidis, Abrams & Ammann, 2001) are available in different parts of the world. Magoni et al. (2007) maintained that successful implementation of PMTCT programmes for a larger number of women are feasible if the health system has adequate resources and personnel. This implies that the availability and adequate delivery of the PMTCT programme will reduce or eliminate the risk of MTCT of HIV.

Modern PMTCT strategies include testing for HIV during pregnancy, modified obstetric practices, preventive antiretroviral (ARV) drugs, and modified infant feeding practices. These strategies, which are still limited both in scope and reach in most of Sub-Saharan Africa, where ironically, the heaviest burden of maternal HIV infection and MTCT exist, have the potential of reducing the MTCT risk down to only 2 to 5 percent (WHO, 2011). The World Health Organization (2011) recommends lifelong highly active antiretroviral therapy (HAART) for HIV-infected women in need of treatment for their own health, which is also safe and effective in reducing MTCT or ARV prophylaxis to prevent MTCT during pregnancy, delivery and breastfeeding for HIV-infected women not in need of treatment for themselves. The goals of the PMTCT programme go beyond decreasing the MTCT risk to a minimum, and aim to achieve the strategic goal of virtual elimination of HIV infection in infants (Malyuta, Newell, Ostergren, Thorne & Zhilka, 2006). Skinner et al. (2005), articulated that availability and adequacy of resources are important factors in the delivery of PMTCT services. He also stated that the problem in implementing PMTCT services is that several clinics that provide services to the local population were already under

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staffed and overpressured. In Abia State, Nigeria, however, there has been a gap in the delivery of basic PMTCT services which includes; testing for HIV during pregnancy, modified obstetric practices, preventive antiretroviral (ARV) drugs, and modified infant feeding practices. A survey of health facilities providing antenatal care conducted by Family Health International 360 (2015), revealed shortfalls in human resources needed for PMTCT service delivery, supply of antiretroviral drugs, registers and supplements given to HIV positive women that are pregnant and that some facilities lacked the basic infrastructure needed for PMTCT services. Hence, this study aimed at determining the adequacy of service providers, equipment, and materials for effective PMTCT service delivery in health facilities in Abia State, Nigeria, five years after the report of the afore mentioned study in Abia State. In the context of this study, adequacy refers to; the number of PMTCT service providers, the availability and functionality of equipment and materials for effective PMTCT service delivery. This paper is an excerpt of a broader research titled *Factors Influencing the Delivery of Prevention of Mother-To-Child Transmission of HIV/AIDS Services in Abia State, Nigeria*, which was carried out between 2019 and 2020.

II. MATERIALS AND METHODS

Descriptive cross-sectional research design was employed for this study which determined the adequacy of human resources, facilities, equipment, and materials for effective PMTCT service delivery in health facilities in Abia State, Nigeria. The study involved health facilities (tertiary, secondary, and primary) in Abia State that offer PMTCT services and are supported by Abia State Agency for the Control of AIDS. Multi-stage random sampling method was used to select four (4) LGAs from the seventeen (17) LGAs in

Abia State with PMTCT service for the study. A total of eighty-one (81) health facilities that offer PMTCT services were studied in the four (4) selected LGAs in Abia state.

A structured checklist was used as the instrument for data collection after establishing validity reliability. The first section of the check list elicited information on the administrative position of the facility representative and the facility status, while the other sections addressed the adequacy of the health facilities for PMTCT services, primarily, the infrastructure of the facility, PMTCT service providers, PMTCT equipment and materials. Oral consent was the study obtained from the administrative heads of the facilities studied. The administrative heads also assisted with navigation within the health facilities as observation and filling of the checklist were carried out. Data were analyzed using Statistical Package for Social Science (SPSS) version 20.0 and the results were presented in simple frequency and percentages.

III. RESULTS

Administrative position of facility representative and the facility status

The result in Table 1 represents the distribution of the facility representatives by their administrative position and facility status. Majority of the facility representatives 57(70.4%) were designated Officer-in-charge, 21(25.9%) were Chief Administrative Officers, while 3(3.7%) were Chief Medical Doctor. On facility status; 66(81.4%) were primary level healthcare facilities, 14(17.3%) were secondary level healthcare care facilities, while 1(1.2%) was a tertiary healthcare facility. Forty-four (44, 54.3%) facilities were located in the rural area, 14(17.3%) were in the urban area, 16(19.8%) were in the semi-urban area and rural scattered recorded 7(8.6%).

Table 1: Distribution of respondents by their administrative position and the Facility status (n=81)

Variable	Frequency	Percentage (%)
Administrative position of facility representative		
Chief Medical Doctor	3	3.7
Officer-in-Charge	57	70.4
Chief-Administrative Officer	21	25.9
Total	81	100.0
Level of health care		
Primary	66	81.4
Secondary	14	17.3
Tertiary	1	1.2
Total	81	100.0
Location of facility		
Urban	14	17.3
Rural	44	54.3
Semi-Urban	16	19.8
Rural-scattered	7	8.6
Total	81	100.0

Availability and adequacy of PMTCT functional areas in the health facilities offering PMTCT services in Abia State

The result of the distribution of health facilities in Abia State offering PMTCT by the availability and adequacy of PMTCT functional areas is presented in Table 2. Thirty-five (35, 43.2%) facilities had a client/patient waiting areas available and adequate, 45(55.6%) had a waiting area available but not adequate, and 1(1.2%) had no waiting area. Forty-six facilities (46, 56.8%) had a registration areas available and adequate, 28(34.6%) had a registration areas available but not adequate, while 7(8.8%) had no registration areas. Forty-two (42, 51.9%) had counselling rooms available and adequate, 28(34.6%) had counselling rooms available but not adequate, and 11(13.8%) had no counselling room. Group counselling space was available and adequate in 21(25.9%) facilities and available but not adequate in 34(42%) facilities while not available in 26(32.1%). Laboratory was available

and adequate in 10(12.3%) facilities, available but not adequate in 26(32.1%), and not available in 45(55.6%). Pharmacy/dispensary was available and adequate in 18(22.2%) facilities, available but not adequate in 41(50.6%), and not available in 22(27.2%) facilities. Labour and delivery room were available and adequate in 45(55.6%) facilities and in 20(24.7%) facilities available but not adequate while in 16(30.9%) not available. Postpartum room was available and adequate in 25(30.9%) facilities, available but not adequate in 31(38.3%) facilities and not available in 25(30.9%). Toilet for Staff was available and adequate in 26(32.1%) facilities, available but not adequate in 5(6.2%), and not available in 50(61.7%) facilities. Toilet for patients was available and adequate in 38(46.9%) facilities, available but not adequate in 23(28.4%), and not available in 20(24.7%). Medical Records' room was available and adequate in 13(16%) facilities, available but not adequate in 28(34.6%), and not available in 49(49.4%) facilities.

Table 2: Distribution of health facilities offering PMTCT in Abia State by the availability and adequacy of PMTCT functional areas

PMTCT Functional Area	Available and adequate		Available but not adequate		Not Available	
	F	%	F	%	F	%
Waiting Area	35	43.2	45	55.6	1	1.2
Registration Area	46	56.8	28	34.6	7	8.6
Counselling room	42	51.9	28	34.6	11	13.6
Group counselling space	21	25.9	34	42.0	26	32.1
Laboratory	10	12.3	26	32.1	45	55.6
Pharmacy/Dispensary	18	22.2	41	50.6	22	27.2
Labour and Delivery room	45	55.6	20	24.7	16	19.8
Postpartum room	25	30.9	31	38.3	25	30.9
Staff Toilet	26	32.1	5	6.2	50	61.7
Patients' Toilet	38	46.9	23	28.4	20	24.7
Medical Records room	13	16.0	28	34.6	40	49.4

Adequacy of PMTCT service providers in PMTCT health facilities in Abia State

The results in Table 3 showed the distribution of PMTCT health facilities in Abia State by adequacy of PMTCT service providers. Two (2, 2.5%) facilities were said to have adequate number of doctors, 7(8.6%) had a moderately adequate number, and 72(88.9%) respondents said the number of doctors were not adequate. Thirty-two (32, 39.5%) respondents said Nurses/Midwives were adequate, 7(8.6%) said nurses and midwives were moderately adequate, and 42(51.9%) reported not adequate. Medical Lab. Officers were reported to be adequate in 26(32.1%) facilities, moderately adequate in 34(42%) facilities and reported to be not adequate

in 48(59.3%) facilities. Community health workers were said to be adequate in 41(50.6%) facilities, moderately adequate in 19(23.5%) and not adequate in 21(25.9%) facilities. Pharmacists were reported to be adequate in 2(2.5%) facilities, moderately adequate in 21(25.9%) facilities and not adequate in 58(71.6%) facilities. Medical Records officers said to be adequate in 14(17.3%) facilities, moderately adequate in 9(11.1%), and not adequate in 58(71.6%).

Table 3: Distribution of PMTCT health facilities in Abia State by adequacy of PMTCT service providers

PMTCT Providers	Adequate		Moderately adequate		Not adequate	
	F	%	F	%	F	%
Doctors	2	2.5	7	8.6	72	88.9
Nurses/Midwives	32	39.5	7	8.6	42	51.9
Medical Lab. officers	26	32.1	7	8.6	48	59.3

Comm. Health workers	41	50.6	19	23.5	21	25.9
Pharmacists	2	2.5	21	25.9	58	71.6
Medical Records officers	14	17.3	9	11.1	58	71.6

Availability of core PMTCT services in the health facilities offering PMTCT services in Abia state

The result of distribution of PMTCT health facilities in Abia State by the availability of PMTCT services is presented in Table 4. Availability of voluntary HIV/AIDS counseling service was reported in 61(75.3%) health facilities, while in 20(24.7%) it was reported not available. Nutritional counseling service was reported available in 65(80.2%) facilities but reported not available in 16(19.8) facilities. HIV testing was said to be available in 72(88.9%) facilities but said not available in 9(11.1%) facilities. Antiretroviral

therapy literacy was reported available in 62(76.5%) facilities and not available in 19(23.5%). Labour and delivery services were said to be available in 70(86.4%) facilities and reported not available in 11(13.6%). adequate. Caesarean section service was said to be available in 10(12.3%) facilities and not available in 71(87.7%). Safer infant feeding counseling is said to be available in 61(75.3%) facilities and not available in 20(24.7%). Family planning service reported available in 76(93.8%) facilities and not available in 5(6.2%).

Table 4: Distribution of PMTCT health facilities in Abia State by availability of core PMTCT services

PMTCT Services	Available		Not Available	
	F	%	F	%
Voluntary counseling	61	75.3	20	24.7
Nutritional counseling	65	80.2	16	19.8
HIV testing	72	88.9	9	11.1
Antiretroviral therapy literacy	62	76.5	19	23.5
Labour and delivery	81	100	0	0
Caesarean section	10	12.3	71	87.7
Safer infant feeding counseling	61	75.3	20	24.7
Family planning	76	93.8	5	6.2

Availability of PMTCT service equipment and materials in the PMTCT health facilities in Abia State

Table 5 presents the results of the distribution of PMTCT health facilities in Abia State by availability of PMTCT equipment and materials. HIV test kit was available in 72(88.9%) facilities, available but not functional in 2(2.5%) and not available in 7(8.6%). PCR Machine was available and functional in 4(4.9%) facilities, available but not functional in 5(2.5%), and not available in 72(89.9%) facilities. Reagents were available and functional in 40(49.4%) facilities, available but not functional in 5(2.5%), and not available in 36(44.4%). Drugs were available and functional in 60(74.1%) facilities, available but not functional in 5(2.5%), and not available in 16(19.8%). Centrifuges were available and functional in 10(12.3%) facilities, available and not functional in another 10(12.3%) facilities but not available in 61(75.3%). Incubators were available and functional in

5(6.2%) facilities, available but not functional in 10(12.3%) and not available in 66(81.5%). Microscope was available and functional in 10(12.3%), facilities, available but not functional in 6(7.4%), and not available in 65(80.2%). Spectrophotometer was available and functional in 10(12.3%) facilities, available but not functional in 2(2.5%) but not available in 69(85.2%). Power supply plant was available and functional in 26(32.1%), facilities, available but not functional in 9(11.1%), and not available in 46(56.8%). Washers were available and functional in 26(32.1%), facilities, available but not functional in 5(6.1%), and not available in 61(61.7%). Anthropometric appliances (e.g., height and weight scale) were available in 54(66.7%) facilities, available and not functional in 2(2.5%) but not available in 25(30.9%) facilities. Patients' cards and registers were available and functional in 65(80.2%) facilities, available but not functional in 3(3.7%), and not available in 13(16%) facilities.

Table 5: Distribution of PMTCT health facilities in Abia State by availability of PMTCT equipment and materials

PMTCT Equipment & Materials	Available & Functional)		Available but Not Functional)		Not Available	
	F	%	F	%	F	%
HIV test kit	72	88.9	2	2.5	7	8.6
PCR Machine	0	0	0	0	81	100
Reagents	40	49.4	5	6.2	36	44.4
Drugs	60	74.1	5	6.2	16	19.8
Centrifuges	10	12.3	10	12.3	61	75.3

Incubators	5	6.2	10	12.3	66	81.5
Microscope	10	12.3	6	7.4	65	80.2
Spectrophotometer	10	12.3	2	2.5	69	85.2
Power supply plant	26	32.1	9	11.1	46	56.8
Washers	26	32.1	5	6.2	50	61.7
Anthropometric Appliances (e.g Height and weight scale)	54	66.7	2	2.5	25	30.9
Patients Cards and Registers	65	80.2	3	3.7	13	16.0

IV. DISCUSSION

Availability of PMTCT services

From the findings of this study, all PMTCT services were available in the studied health facilities. These services include voluntary HIV/AIDS counselling, HIV testing, antiretroviral therapy, labour and delivery, caesarean section, early infant diagnosis, family planning, and safer infant feeding counselling. The availability of the core PMTCT services in the studied health facilities was expected and validates the UNGASS (2001) declaration where world leaders pledged that 80 percent of pregnant women accessing antenatal care would have information on counselling and other HIV prevention services available to them.

However, the findings of this study further showed that only 10(12.3%) health facilities from the 81 health facilities assessed offered caesarean section services. This was because of the 81 health facilities studied, 66(74%) are primary health facilities, 14(17.3%) are secondary health facilities, and only 1(8.6%) is a tertiary health facility. Most of the primary health facilities in Abia state do not offer Caesarean Section services. This finding is in contrast with Ioannidis et al. (2002) who stated that all PMTCT services are available in different parts of the world.

Adequacy of PMTCT service providers

The findings of this study showed that only 2(2.5%) of the health facilities assessed had an adequate number of medical doctors and pharmacists. The overall assessment showed that PMTCT service providers in Abia state were not adequate. This is in line with a study done in 2015 by Fhi360 in Abia state where only 44 (7%) of the health facilities in Abia state were found to meet nationally prescribed human resource criteria for scale-up (one doctor, one nurse/midwife, two community workers, one pharmacy staff, one laboratory staff, one medical records officer) (Fhi360 report, 2015). With the observation of Magoni et al. (2007) who noted that the successful implementation of PMTCT programme is feasible if the health system has adequate resources and personnel, the inadequacy of PMTCT service providers is a major factor influencing the poor delivery of PMTCT services in Abia state. This finding is also in line with the country report of PMTCT in Nigeria that was compiled by Agu (2009), he outlined the key implementation barriers to scaling up PMTCT programme. Some of the key barriers included factors such as lack of male involvement, shortages of staff, and neglected follow-up after delivery for both mother and

baby.

The availability of PMTCT service providers in Abia state could be attributed to nurses and community health workers as seen in this study to be adequate in 32(39.5%) and 41(50.6%) health facilities respectively.

Adequacy of PMTCT facilities and materials

The findings of this study revealed that there are adequate HIV test kit, drugs, patient's card and register, centrifuges, and anthropometric appliances in the assessed PMTCT sites as expected. This is in conformity with Preble and Piwoz (2002) who noted that availability of material resources are necessary for effective implementation of PMTCT programme.

However, other major amenities required for PMTCT service delivery like the PCR machine and power supply plant were inadequate with no facility 0(0%) having the PCR machine. A study by Magoni et al. (2007) noted that the successful implementation of PMTCT programme is feasible if the health system has adequate resources and personnel. The gross inadequacy of major PMTCT service infrastructure like the PCR machine therefore reveals a viable factor influencing poor PMTCT service delivery in Abia state. The findings of the study also revealed that the spectrophotometer and washers were not adequate. This is expected because with the availability of HIV test kit, a spectrophotometer and washers were not necessary for PMTCT. Results from this study also showed that functional areas in the health facilities such as laboratory, pharmacy/dispensary, postpartum room, medical records room, were available but not adequate. This can be as a result of the greater proportion of primary health care facilities initiated to offer PMTCT services in the state with limited infrastructure and amenities.

V. CONCLUSION

This study has been useful in determining the adequacy of facilities, personnel, Equipment and materials for effective PMTCT service delivery in health facilities in Abia state, Nigeria. Some of the implicating factors revealed by this study were inadequacy of some PMTCT facilities and materials, and non-availability of some PMTCT services in the health facilities. While this study highlighted the factors influencing poor delivery of PMTCT services in Abia state, it also highlighted some notable attributes like the positive attitude of most health workers towards PMTCT service delivery. The results of this study also indicated that a good number of the health workers in Abia state have a high level of knowledge of PMTCT service delivery.

VI. RECOMMENDATIONS

Based on the findings of the study, the following recommendations were considered necessary;

The state government in conjunction with supporting non-governmental organisations should equip some PMTCT focal sites with basic equipment for comprehensive PMTCT service delivery within the state.

Routine distribution of PMTCT supplies like test kits, drugs, hand-gloves etc. within the state should be adopted by the state government and other supporting non-governmental organisations.

The primary health facilities are the first level of health care before referral if necessary. Hence, the state government should ensure that primary health facilities in Abia state are duly and comprehensively equipped with PMTCT supplies and materials for effective PMTCT service delivery.

A study on the effectiveness and outcome of PMTCT of HIV and AIDS programme should be conducted in the state.

A cohort study on early infant diagnosis and follow-up should be done in Abia state to track the success of the initiated PMTCT programs within the state.

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