# The Impact of Prevention of Mother to Child Transmission of HIV Programme In the Federal Capital Territory, Abuja

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## Abstract

***Background:*** *Human Immunodeficiency virus (HIV)/ acquired immune deficiency syndrome (AIDS) is spreading rapidly among the world's children especially in Sub-Saharan Africa. Mother-to-child transmission (MTCT) is the major route of acquired this disease in children. Prevention of mother-to-child transmission (PMTCT) of HIV programme is aimed at reducing HIV/AIDS in children to its barest minimum. The aim of the present study is to determine the impact of PMTCT programme on HIV exposed infants in the Federal Capital Territory (FCT), Abuja*

***Method:*** *A six month prospective study of 160 HIV exposed infants attending Paediatric Outpatient Special Treatment Clinic (POSTC) of the University of Abuja Teaching Hospital (UATH) was carried out. Exposed infants were categorized based on their participation in the PMTCT programme. Deoxyribonucleic acid (DNA) Polymerase Chain Reaction (PCR) test was used for early diagnosis of HIV infection in the study infants.*

***Results:*** *Overall transmission rate of HIV infection among the study subjects was 33.7%. Transmission was found to occur in 6.7% of infants who participated in PMTCT programme and in 68.6% of those not involved in the programme, P<0.001. For infants in the full programme, transmission occurred in 2.7% of cases and in 25.0% among those involved partially, P<0.05.*

***Conclusion:*** *The study shows that transmission of HIV infection to exposed infants is high in FCT, Abuja. Transmission was however found to be significantly lower in infants who participated in PMTCT programme and even much lower in those involved in the full programme. It is therefore recommended that there is an urgent need to establish full PMTCT programme in many health care facilities across the nation as a major way of reducing paediatric HIV/AIDS in the country.*

***Key Words:*** *HIV/AIDS; Prevention of mother-to-child transmission programme, exposed infants, transmission rate.*

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## Introduction

Sub-Saharan Africa has continued to bear the greatest burden of HIV/AIDS epidemic. Over 2.1 million children infected with HIV are found in this part of the world.[1] Mother-to-Child transmission alone is responsible for over 90% of Paediatric HIV/AIDS, and the greatest is also is also in Sub-Saharan Africa.[1,2] This has been attributed to the currently prevailing high level of hetero-sexual transmission, high total fertility rate and high breastfeeding rate.[2,3] PMTCT programme, which primarily involves prevention of HIV infection in women, prevention of unintended pregnancy in HIV infected women, prevention of HIV transmission from infected mothers to their unborn babies and infants, and support of infected women and their infants as well as their families, is aimed at reducing Paediatric HIV/AIDS to the barest minimum.[2,3]

In most developing nations, Nigeria inclusive, PMTCT programme has not been established in many hospitals and communities, hence transmission rate of this virus to exposed infants can be as high as 40%[2,3]. This is in contrast to the low transmission rate of 2% in most developed countries with well established PMTCT programme. [3,4]. The rate of HIV transmission in exposed infants is influenced by many factors which include, high maternal viral load (VL), mode of delivery, prolong rupture of membrane and breasfedding.[2-9]

For women who do not breastfeed, intrauterine transmission was found previously to be responsible for 25%-40% of MTCT of HIV infection, while delivery alone accounted for 60%-75% of transmission of the virus. There is a direct correlation between maternal VL and probability of perinatal transmission, varying from 41% with a VL of >100,000c/ml to 0% with VL of <1000c/ml.[4,7-10] Caesarian Section (C/S) has established efficacy in reducing perinatal transmission when maternal VL exceed 1000c/ml.[4-11,12] The current recommendation by National Guideline[2], and Department of Health and Human Service (DHHS) guideline, [4] was that infected women with low CD4 cell count or VL >1,000c/ml at 36 weeks of pregnancy should be offered C/S. However, C/S confers less benefit for pregnant women given Highly Active Antiretroviral Therapy (HAART) due to substantial reduction in perinatal transmission rate with effective viral suppression. [4, 11-14]

The risk of transmission of HIV with breastfeeding ranges from 5% to 20%. [2,3,15-17] This risk appears to be

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greater in the first 3 months of life with a two fold increase in women with mastitis, and a fifty-fold increase in those with breast abscess or those who practice mixed feeding.[4,16] Breastfeeding is discouraged for HIV-infected women in the developed world because of risk of its transmission through breast milk.[3,4] The issue is more complex in the developing countries where breastfeeding is critical for infant nutrition and their survival, because of its acclaimed immunological, nutritional, psychological and most importantly its economic benefit.[3,14,19,20] Breast milk substitutes (BMS), though widely encouraged for HIV positive mothers in developed nations, might not be very feasible in developing countries because of the low literacy level among women and widespread poverty.[6] Artificial infant milk formula, one of the major BMS, apart from being out of reach of many homes in the developing countries because of its cost and affordability, is associated with a greater risk of diarrhoea and malnutrition from use of unsafe water for its preparation, inappropriate reconstitution to save cost, and use of feeding bottle.[20]

Paediatric HIV/AIDS has continued to undermined the achievements of child survival strategies in the developing countries where PMTCT programme has not been fully established in many hospitals due to its financial involvement. [22-24] With the establishment of free PMTCT services in our hospital, courtesy of government of United States of America, the study was carried out to determine the impact PMTCT programme will have in HIV exposed infants in FCT, Abuja. It is envisaged that the result of the study will be of practical importance in strengthening policy implementation of PMTCT programme all over the country.

## Patients and Method

The study was conducted at the UATH, Gwagwalada, from April to October, 2006. Gwagwalada is one of the Area Council in the FCT, Abuja. The Teaching Hospital is a referral centre for adjoining states (Niger, Kogi, Nassarawa, Benue, part of Kaduna) and the FCT. PMTCT became fully established in the hospital in April 2006 and use of HIV DNA PCR test for early detection of HIV infection in the blood sample of exposed infants was also made available to the patients. It is well established that the test is 100% sensitive for HIV DNA particles as early as 4 6 weeks of life. [25,26] The study was carried out after ethical clearance by the ethical committee of the Hospital. The subjects were 160 HIV exposed infants attending POSTC of the hospital. For purposes of the study, the infants were grouped into two through a self-selection mechanism. Group I infants were those who received PMTCT programme, while Group II did not receive any form of intervention. Group I was further divided into a and b. Group 1a, were those PMTCT exposed infants who receive full programme treatment, while group 1b were those who received partial programme treatment. Full programme designates infants whose mothers received antiretroviral (ARV) drug treatment during pregnancy or delivery and the infants also received neonatal ARV drug post exposure prophylaxis after delivery. Partial programme treatment refers to those group of infants who received only neonatal ARV drugs prophylaxis, their mothers did not receive any drug intervention during pregnancy or delivery. ARV drugs received by the mothers were either: (a) HAART involving use of three drugs together, commonly zidovudine, lamivudine and Nevirapine. Or (b) use of two drugs zidovudine and lamividine during pregnancy. Or (c) Only single dose nevirapine during labour. Neonatal ARV drugs post explosure prophylaxis used were:- Single dose nevirapine syrup at 2mg/kg start, and zidoumidine syrup at 4mg /kg twice daily for 6 weeks.[2,27]

On recruitment of infants whose mothers received ARV drug(s) medication during pregnancy or delivery in the labour room (full PMTCT group), neonatal ARV drug post exposure prophylaxis using drug(s) outline previously was started within 24hours of birth[2,26]. Blood sample was collected for DNA PCR test after 6 weeks of age. Neonatal ARV drug post exposure prophylaxis was also started for infants whose mothers did not receive any ARV drug treatment during pregnancy or delivery (partial PMTCT group) when seen within the first 72 hours of delivery.[2,27] Infants whose mothers did not receive any intervention during pregnancy or delivery and were seen after 3-7day of birth were given only zidovudine for 6 week[2,27]. Such infants, were also categorized as partial PMTCT patients. Infants seen after 6 weeks of age were not given any neonatal post exposure prophylaxis, and were categorized as non-PMTCT group.

DNA PCR test was done for all categories of infants (full, partial and non-PMTCT) after 6 weeks of age. Where DNA PCR test was positive and the infant met WHO/National Guide line[27] for commencement on HAART, such infants were started on HAART in addition to combination of trimethoprin and sulphametoxazole (co-trimazole) for prophylaxis against opportunistic infections[2,27]. Those who did not meet WHO/National Guideline for commencement of HAART where monitored and followed up at the POSTC with CD4 cell count, they were also started on cotrimazole after 6 weeks of age.

Negative infants whose mothers were not breastfeeding were given cotrimazole after 6 weeks of age, while those whose mothers opted for breastfeeding, in additions to cotrimazole prophylaxis against opportunistic infections, DNA PCR test was repeated after 6 weeks of stopping breastfeeding.

PMTCT mothers who opted to breastfeed were encouraged and supported to practice only exclusive breastfeeding, and to stop breastfeeding as soon as alternative infants' feeding method was possible. For mothers who wanted artificial feeding, acceptability, feasible, affordability, sustainability and safe (AFASS) criteria were accessed right from antenatal clinic and at delivery. Where AFASS criteria were met for commencing artificial feeding, infants were started on breast milk substitute (BMS) using preferably commercial infants' milk formula. Where AFASS criteria were not met such mothers were encouraged and supported to practice only exclusive breastfeeding.

The data collected during the study period were analyzed using the SPSS programme version 7.5 of December 1996. The analysis provided means, standard deviation, and tests of statistical significant in terms p values.

## Results

Background information on the study subjects are presented in Table 1. The one-hundred and sixty (160) recruited infants consist of 94 males (58.8%) and 66 females (41.2%), given a male-to-female ratio of 1.4:1. The mean age of the 160 infants was 10.2±2.1 weeks. Ninety (56.3%) of the recruited infants were involved in the PMTCT programme, while 70 (43.7%) received no form of intervention. Of the ninety PMTCT patients, 74 (82.2%) were involved the full programme, and 16 (17.8%) were partially involved. The numbers of the patients are also indicated on the bases of the modes of delivery and feeding.

Table II is a summary of the results of the DNA PCR tests done on the recruited exposed infants during the six months period of study. The variables studied were: (1) Level of participation in the PMTCT programme (whether full, partial or non-participation); (2) Maternal anti-retroviral therapy (encompassing mothers on or not on ARV drugs); (3) Mother who received HAART, and those who did not; (4) Mode of infants' delivery (whether spontaneous vertex delivery (SVD) or by C/S, and (5) Infant feeding methods breastfeeding or artificial feeding). DNA PCR test was positive in 33.7% of the study sample, in 6.7% of those who enrolled in the PMTCT programme, and in 68.6% of those who did not ($p < 0.001$). Statistical analysis indicated significant differences in the rates of HIV transmission in the infants who undertook full PMTCT (2.7%) and those who only participated partially (25.0%), $P<0.05$.

The positive effects of PMTCT were clearly observable in terms of HIV transmission rates from mothers of the exposed infants. These rates were respectively 2.7%, 65.1%, 0% and 11.1% for mothers who received ARV drugs during pregnancy or during delivery, mothers who were not treated with ARV drugs, mothers who received HAART medication during pregnancy, and those who receive combination of zidovudine and nevirapine during pregnancy/ those who received only single dose nevirapine while in labour. Transmission rate for infants modes of delivery and feeding practises was also shown in table II, For those mothers delivered vaginally, the rate was 41.1% as against 3.2% in those delivered by C/S $P<0.001$. Transmission was also higher in breastfed infants (57.7%) than in those artificially fed (5.3%) These statistical inferences were made at $p< 0.001$. $X^2 = 266.48$

One of the major aspects of this study was to determine the impact of participation or non-participation in PMTCT programme of HIV infection in the FCT, Abuja. The impact was defined on the basis of the sexes of the study infants, the mothers' clinical profiles in terms of anti-HIV drugs taken, modes of delivery and infant feeding method. The results are summarized in table III. It is apparent from the table that while MTCT rate was 6.7% in the PMTCT cohort, it was 68.6% for the patients not involved in the programme ($p<0.001$) $X^2 = 853.28$. Among PMTCT mothers who recieved HAART, transmission was 0%, those on two ARV drugs combinations it was 8.3%, while those on single dose Nevirapine, transmission was found to be 16.7%. For mothers delivered vaginally and on PMTCT, the transmission rate was 7.9%, and for those not on the programme, it was 68.2% ($p<0.001$). In comparison with those delivered by C/S, the rates were respectively 3.7% in PMTCT participating patients and (50.0%) for those who did not participate. Among breastfed exposed infants on PMTCT, the rate of HIV transmission was 42.9%, while it was 57.7% for infants not in the PMTCT programme $p>0.05$, $X^2 = 1,228$. The impact of the programme was clear between artificially fed infants on PMTCT (4.3%) as against (50.0%) for artificially fed infants not in the programme.

The rates of HIV transmission among patients who had full PMTCT participation and those who participated

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partially are shown in Table IV. Of the 74 infants participated fully in the programme, 2 (2.7%) were infected with HIV. Among the 16 who had only partial PMTCT programme, HIV transmission rate was 4( 25.0%), p<0.05. Statistical result showed no significant difference in HIV transmission between infants who had full or partial PMTCT involvement in terms of delivery by vaginal route 7.1% vs 8.6% and for breastfeeding, 50% vs 60%, $X^2$ = 1,530, P>0.05. There is statistical difference between the two group in the area of C/S delivery, 0% and 33.3%, and 1.5% vs 100%, P<0.05 for artificial method of feeding. The two deaths recorded occurred among the infants who were partially involved in the programme, one out of the two that died had HIV transmission, (50.0%).

**Table I: Background Information of Recruited Infants**

| Variables | Male | Female | Total |
|---|---|---|---|
| Recruited infants | 94 | 66 | 160 |
| Age in weeks | *8.0 1.0 | *12.0 3.0 | *10.2 2.0 |
| PMTCT infants | 52 | 38 | 90 |
| Non-PMTCT infants | 41 | 29 | 70 |
| Full PMTCT ,, | 49 | 25 | 74 |
| Partial PMTCT ,, | 10 | 6 | 16 |
| Delivery by SVD | 71 | 58 | 129 |
| Delivered by C/S | 20 | 11 | 31 |
| Breastfed infants | 49 | 36 | 85 |
| Artificially fed infants | 47 | 28 | 75 |

**Values are means ± SD*
*SVD Spontaneous Vertex Delivery*
*C/S Caesarian section*

**Table II: Transmission Rate Among HIV Exposed Infants**

| | Total (%) | PCR Positive (%) | PCR Negative (%) | Transmission Rate % |
|---|---|---|---|---|
| Study infants | 160(100) | 54(33.7) | 106(66.3) | 33.7 |
| PMTCT | 90(56.3) | 6(6.7) | 84(93.3) | 6.7 |
| Non-PMTCT | 70(43.7) | 48(68.6) | 22(31.4) | 68.6 |
| Full PMTCT | 74(46.3) | 2(2.7) | 72(97.3) | 2.7 |
| Partial PMTCT | 16(10.0) | 4(25.0) | 12(75.0) | 25.0 |
| Mothers on ARV drugs | 74(46.3) | 2 (2.7) | 72 (97.3) | 2.7 |
| Mothers not on ARV drugs | 86(54.0) | 56(65.1) | 30(35.0) | 65.1 |
| PMTCT Mothers on HAART | 56 (35.0) | 0(0) | 56(100.0) | 0 |
| PMTCT Mothers not on HAART | 18(11.3) | 2(11.1) | 16(88.8) | 11.1 |
| Mothers delivered by SVD | 129(80.6) | 53(41.1) | 75(46.8) | 41.1 |
| Mothers delivered by C/S | 31(19.4) | 1(3.2) | 30(96.8) | 3.2 |
| Breastfed infants | 85(53.1) | 49(57.7) | 25(33.8) | 57.7 |
| Artificially fed infants | 75(46.9) | 4(5.3) | 82(95.8) | 5.3 |

*HAART - Highly active antiretroviral treatment*
*ARV - Antiretroviral*
*PCR - Polymerase Chain Reaction*

**Table III: Comparism of Clinical and Transmission of HIV infection Among PMTCT and Non-PMTCT Infants.**

| Variables | Total (%) | PMTCT group (%) | Non-PMTCT group (%) | PMTCT Transmission rate (%) | Non-PMTCT Transmission rate (%) |
|---|---|---|---|---|---|
| Recruited infants | 160 | 90(56.3) | 70(43.8) | 6/90 (6.7)+++ | 48/70(68.6)+++ |
| Male | 94 | 53(56.4) | 41(43.6) | 4/53(7.6)+++ | 27/41(65.8)+++ |
| Female | 66 | 37(56.1) | 29(45.2) | 2/36(5.6)+++ | 21/29(72.4)+++ |
| PMTCT Mothers on HAART | 56 | 56(75.7) | - | 0/56(0) | - |
| Mothers on 2 ARV drugs | 12 | 12(16.2) | - | 1/12(8.3) | - |
| Mothers on only Nevirpine | 6 | 6(8.1) | - | 1/6(16.7) | - |
| SVD delivery | 129 | 63(48.8) | 66(51.2) | 5/129(7.9)+++ | 45/66(68.2)+++ |
| C/S delivery | 31 | 27(87.1) | 4(12.9) | 1/31(3.7)+++ | 2/4(50.0%)+++ |
| Breastfed infants | 85 | 7(8.2) | 78(91.8) | 3/7(42.9) | 45/78(57.7) |
| Artificially fed | 75 | 69(92.0) | 6(8.0) | 3/69(4.3)+++ | 3/6(50.0)+++ |
| No of deaths | 10 | 2(2.2) | 8(11.4)+ | 1/2(50.0)+ | 6/8(79.0)+ |

*+, P < 0.05*
*++, P < 0.01*
*+++, P < 0.001*

**Table IV: Comparism of Clinical and Transmission of HIV infection among Full PMTCT and Partial PMTCT Infants**

| Variables | PMTCT Total | Full PMTCT (%) | Partial PMTCT (%) | Full PMTCT Transmission Rate (%) | Partial PMTCT Transmission Rate (%) |
|---|---|---|---|---|---|
| Exposed PMTCT infants | 90 | 74(82.2) | 16(17.8) | 2/74 (2.7)++ | 4/16 (25.0)++ |
| PMTCT Mothers on ARV drugs | 74 | 74(100) | - | 2/74 (2.7%) | - |
| Mothers not on ARV drugs | 16 | - | 16(17.8) | - | 4/16 (25.0) |
| SVD delivery | 63 | 28(44.4) | 35(55.6) | 2/28 (7.1) | 3/35 (8.6) |
| C/S delivery | 27 | 24(88.9) | 3 (11.1) | 0/24 (0)++ | 1/3 (33.3)++ |
| Breastfed infants | 7 | 2 (28.6) | 5 (71.4) | 1/2(50.0)+ | 3/5 (60.0)+ |
| Artificially fed infants | 69 | 68(98.6) | 1(1.4) | 1/68 (1.5)+++ | 1/1 (100.0)+++ |
| No of deaths | 2 | 0(0) | 2(2.2) | 0(0)+++ | 1/2 (50)+++ |

*+, P < 0.05*
*++, P < 0.01*
*+++, P < 0.001*

## Discussion

The importance of PMTCT programme was recognized and highlighted in the present study. It can be argued that when the programme is fully implemented, that is, HIV positive pregnant mothers receive HAART early in pregnancy, delivered preferably by C/S and adopt artificial method of infant feeding, its impact will be greatly recognized.

The overall transmission rate of HIV infection among the exposed infants in our environment is high (33.7%). Thus high transmission rate especially prior to the era of HAART was also reported by other workers.[13,22] It has been shown that Sub-Saharan Africa caries the greatest burden of HIV/AIDS in children and Nigeria rank second to South Africa in the continent.[2] Mother-to-child transmission is also very high in the sub-region as a result of high HIV prevalence in women of child-bearing age, high fertility rate, prolonged breastfeeding and either unavailability or inadequacy of PMTCT programme in many hospitals and communities.[2,3] It is therefore not surprising that figures as high as 68.6% was recorded among exposed infants who did not receive any form of intervention.

In the present study, infants whose mothers received HAART during pregnancy and delivery recorded no transmission (0%); those who had two ARV drugs

intervention showed 8.3% transmission, rate, while the rate of transmission for mothers who received only Nevirapine was 16.7%. It has been well documented that HAART, especially when started either prior to or early in pregnancy, reduces perinatal transmission to less than 1%.[10,11] This is achievable through substantial reduction in viral replication with undetectable viral load which is a key factor in perinatal transmission.[10,11] The ARV medication also load the fetus with prophylactic drugs that prevents transmitted virus from replicating.[11] The transmission rate of 0% recorded for mothers who received HAART in the present study drugs was not far from 1% commonly reported in other centres and probably may have been as a result of early commencement of HAART by positive pregnant mothers during pregnancy, with substantial reduction in viral replication. Single dose nevirapine and two drug treatments did not guaranty absolute protection of young infants in the present study. This findings has also been demonstrated by several other workers.[28,29] Infact, Thistle et al[28] noted 47% and 32% reduction in perinatal transmission with single dose nevirapine and two drug treatment during pregnancy.

For women who did not receive ARV drugs during pregnancy or delivery, HIV transmission occurred in 65.1% of them in this study. Such high transmission rate was also noted before the advent of HAART.[13,18] Fiscus et al[18] in their study in North Carolina, noted that 22 out of 35(62.9%) infants infected with HIV were those whose mothers received no ARV drugs during pregnancy and delivery. Their findings were not different from what was obtained in the present study; and underscores the importance of ARV drugs to HIV positive mothers as a major way of reducing transmission to their unborn infants.

Clinical evidence has demonstrated that C/S delivery has reliable efficacy in reducing perinatal transmission especially when VL exceeds 1,000 copies/m.[4,12] In a meta-analysis of 15 studies with 8,533 mother-infant pair by the International Perinatal HIV Group, it was noted that vertical transmission of HIV occurred in only 2% of infants delivered by C/S.[12] In a related comparative study of the relationship between HIV transmission and mode of delivery (vaginal delivery Vs C/S delivery), the researchers recorded transmission rate of 10.5% Vs 1.8% for vaginal deliveries and C/S patients.[29] In the present study, 3.2% transmission rate was noted to have occurred in C/S delivery and 41.1% transmission in those who had vaginal deliveries, $P < 0.001$. The high transmission rate observed in infants delivered vaginally may have resulted from the fact that most of these mothers received no ARV intervention during pregnancy and delivery.

One PMTCT variable that showed interesting results in the present study is the mode of infant feeding. The HIV transmission rates were, 57.7% for breastfed infants and 5.3% for artificially fed one, $p< 0.001$. The literature is replete with evidence of the effects mode of feeding has on HIV transmission.[15,17,30-33] Nduati et al[16] observed transmission rates of 36.7% and 20.5% respectively for breastfed and artificially fed infants. Motti and others[32] found transmission rates of 39% to occur in exclusively breastfed infants, 32% in those who had mixed feeding, and 24% for formula fed infant[31] The transmission rate of 57.7% recorded for breastfed infants in the present study appears high when compared with reports from other worker's.[15,17] This result may not be a true picture of infants infected with HIV through breast milk because the design of the study did not pick the negative babies at birth to have attributed the high transmission seen in breastfed infants to be from breast milk alone. According to information from the data, 84 out of 86 mothers (97.7%) who did not receive ARV medication during pregnancy or delivery breastfed their babies. The data also showed that 81 out of 85 (95.3%) of breastfed babies were delivered via vaginal route. Breastfed babies in this study, apart from the risk of acquiring HIV infection through breast milk, may also have been infected with the virus either inutero or during delivery.[7,10,15,17,31-33]

A mortality rate of 6.3% was recorded among all the exposed infants in the present study, 2.2% for the PMTCT group and 11.4% for the non-PMTCT infants ($p< 0.05$). The 2.2% recorded for PMTCT group of infants were among those infants who were partially involved in the programme. No mortality was recorded among the full PMTCT infants. A number of other workers have observed a similar pattern in mortality among infected and un-infected infants, and have attributed the higher mortality rate among infected children to both HIV burden on infants as well as to inadequate care from their sick and infected mothers.[21-24]

The number of PMTCT exposed infants who turned out to be negative determines the impact of the programme in the environment. In this study, 93.3% of PMTCT infants were negative as against 31.4% of non-PMTCT group, ($p <0.001$). The PMTCT programme apart from reducing the risk of transmission of HIV infection from mothers to their exposed infants, also reduce their

chances of dying. This is achievable through reducing the risk of transmission of HIV infection among the infants, as well as improving the well-being of the mothers who are expected to take care of them through the use of ARV drugs.

PMTCT programme is convincingly important, and should be practiced fully. In the study, infants who participated fully in the programme (i.e. those infants whose mothers received ARV drugs during pregnancy and delivery) as well as neonatal ARV drugs post exposure prophylaxis recorded a transmission rate of 2.7% as against 25% in those that had partial PMTCT. This support the importance of ARV medication to pregnant HIV positive mothers as a major way of reducing MTCT of HIV infection in children

## Conclusion

PMTCT programme especially when practiced fully appears to have significantly protected exposes infants from getting HIV infection from their mothers. It equally reduced their chances of dying from HIV related conditions. The findings from this study underscores the need for policy makers, as a matter of urgency, to establish full PMTCT programme in most hospitals and communities across the nation, as a major way of reducing HIV scourge in children. Some of the outcome of the study which offer ample scope for further investigation is the monitoring of MTCT on the basis of infant feeding.

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