



# Preventing Mother-To-Child Transmission of HIV in Benin City, Edo State, Nigeria: The Health Workers' Perspective

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## Authors' contributions

*This work was carried out in collaboration between both authors. Authors TA and ANO designed the study protocol. Author TA managed the data collection process, analysed the data and wrote the first draft of the manuscript. Both authors read and approved the final manuscript.*

## Article Information

DOI: 10.9734/ISRR/2016/29204

### Editor(s):

- (1) Kailash Gupta, Division of AIDS, NIAID, NIH, USA.  
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Complete Peer review History: <http://www.sciencedomain.org/review-history/17501>

Original Research Article

Received 29<sup>th</sup> August 2016  
Accepted 29<sup>th</sup> December 2016  
Published 11<sup>th</sup> January 2017

## ABSTRACT

**Introduction:** Mother-to-child transmission of HIV threatens the survival of children of below five years of age. Health workers play an important role in preventing mother-to-child transmission of HIV.

**Objective:** The objective of this study was to evaluate the programme for preventing mother-to-child transmission of HIV (PMTCT) in Benin City, Edo State from the perspective of the health workers involved in the programme.

**Methodology:** This was a qualitative study evaluating the PMTCT programme in Benin City from the perspective of health workers and PMTCT programme officers. Data was collected through key informant interviews held with health workers at seven health facilities providing comprehensive

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PMTCT services. Key informant interviews were also held with government officials supervising the PMTCT programme in the state.

**Results:** Fifteen key informant interviews were conducted with health workers and PMTCT programme officers in the state. The key informants had been involved in the PMTCT programme for between three years and eight years. The respondents identified several benefits of the PMTCT programme during the course of the study. The benefits included reduction in stigmatisation, improved quality of life for HIV positive mothers and reduction in mother-to-child transmission of HIV. Several challenges to the implementation of the programme were identified by the respondents including inadequate manpower, stock-outs of antiretroviral medications and patients' preference for home deliveries. Recommendations to overcome these challenges included increased programme funding, training and re-training of health workers, sustained mass media campaigns to reduce stigmatisation of persons living with HIV among others.

**Conclusion:** The health workers were generally positive in their perception of the programme for preventing mother-to-child transmission of HIV in Benin City, Edo State as the programme had provided numerous benefits for the patients, the community in addition to upgrading existing health facilities. Factors hindering the implementation of the programme from the health workers' perspective were staff shortages, inadequate supply of drugs and other commodities and poor adherence by patients. Achieving the goal of reducing mother-to-child transmission of HIV in Benin City and Nigeria as a whole requires combined efforts by all stakeholders including patients, health workers, members of the community, non-governmental organisations and the various tiers of government.

*Keywords: HIV; PMTCT programme; evaluation; health workers; Nigeria.*

## 1. INTRODUCTION

Preventing mother-to-child transmission of HIV refers to the comprehensive range of services aimed at reducing mother-to-child transmission of HIV including HIV counselling and testing, family planning, antenatal care, intrapartum care, postnatal care, early infant diagnosis and follow-up care of HIV positive mothers and their infants. The national programme for preventing mother-to-child transmission (PMTCT) of HIV commenced in Nigeria in the year 2002 in eleven tertiary health facilities spread across the six geo-political zones of the country [1-2]. Currently, the PMTCT programme is being implemented in 684 sites across the country comprising primary, secondary and tertiary health facilities [2].

The goal for the National PMTCT programme was to reduce the transmission of HIV through mother-to-child transmission (MTCT) of HIV by 50% by the year 2010 and to increase access to quality HIV counselling and testing services by 50% by the same year [1]. Having exceeded the target year 2010, the 2010-2015 National PMTCT scale up plan was instituted to improve maternal health and child survival in the country through the accelerated provision of comprehensive PMTCT services [2-3].

With an estimate of 380,000 living with HIV, Nigeria has the highest number of children living

with HIV globally. Twenty-nine percent of pregnant women living with HIV in Nigeria received antiretroviral medications to prevent mother-to-child transmission of HIV in 2014.[4] Only 12% of children living with HIV in Nigeria are currently on antiretroviral medications for treatment of HIV [4]. Unacceptably high rates of mother-to-child transmission of HIV between 33% and 68% have been reported by health facilities implementing the PMTCT programme in Nigeria [5-7]. Factors affecting the implementation of the programme in Nigeria include insufficient manpower, inadequate materials for HIV testing, low uptake of HIV testing among pregnant women and the practice of mixed feeding by HIV positive mothers [5-8]. Similar findings have been reported in the literature [9-12]. Health workers have a crucial role to play in implementing the PMTCT programme and reducing the rate of mother-to-child transmission of HIV in Benin City, Edo State and in Nigeria as a whole. This study evaluates the PMTCT programme in Benin City, Edo State, Nigeria from the health workers' perspective highlighting the benefits of the programme and the attendant challenges in reducing mother-to-child transmission of HIV in the state. As a group of persons implementing the PMTCT programme, the health workers provided unique insight into the factors hindering the implementation of the programme as well as recommendations to overcome some of these

challenges. The findings from this study will guide policy makers on practical measures to improve the implementation of the PMTCT programme in Benin City and in Nigeria as a whole.

## 2. MATERIALS AND METHODS

This study was conducted in Benin City, the capital of Edo State, Nigeria with a population of 1, 085, 676 persons spanning across three Local Government Areas, namely: Oredo, Egor and Ikpoba-Okha.<sup>13</sup> Benin City is a multicultural city whose residents are mainly farmers, traders, artisans, civil servants and students. The city hosts many public and private institutions including government parastatals, primary, secondary and tertiary educational institutions, industries, banks, markets, hotels, restaurants, hospitals and clinics. Twenty-one health facilities provide HIV/AIDS and sexual reproductive health services in Benin City [13]. Seven of these health facilities provide comprehensive services for PMTCT of HIV including HIV counselling and testing, family planning, antenatal care, delivery care, post natal care and early infant diagnosis. These health facilities comprising one tertiary health facility and six secondary health facilities were included in this study. Together, the seven health facilities record over 8,000 deliveries and 72,000 antenatal clinic consultations in a year. The seven health facilities included in this study were: the University of Benin Teaching Hospital, Central Hospital Benin City, Stella Obasanjo Women and Children's Hospital, Military Base Hospital Benin City, Faith Mediplex Hospital, St. Philomena Catholic Hospital, Evangel Model Hospital, all located in Benin City, Edo State.

### 2.1 Study Design

This was a qualitative study. Data was collected through key informant interviews held with health workers providing PMTCT services in different health facilities and State programme officers supervising the implementation of the programme across the state.

The study population comprised:

1. Health workers who were PMTCT focal persons at the health facilities providing comprehensive services for preventing mother-to-child transmission of HIV in Benin City. These health workers had received extensive in-service training within and outside the health facilities to

fully equip them for their roles in the PMTCT programme.

2. Officials of government agencies supervising the PMTCT programme in Benin City, including the Edo State Agency for the Control of AIDS (EDOSACA) and the Edo State AIDS and STI Control Programme (EDO SASCP).

### 2.2 Inclusion Criteria

Health workers serving as PMTCT focal persons within the health facility with at least twelve months' experience of implementing the programme were included in this study. The time frame of twelve months was selected as it would provide opportunities for the health workers to benefit from extensive training programmes within and outside their health facilities and thus acquire expert knowledge on the PMTCT programme. Similarly, government officials who were PMTCT programme officers with at least twelve months experience of supervising the PMTCT programme in the state were included in the study.

### 2.3 Exclusion Criteria

Health workers who declined to participate in the study or who were unavailable during the study period were excluded from the study.

### 2.4 Sampling Technique

Each PMTCT site has between one and three health workers serving as PMTCT focal persons at the health facilities. One or two PMTCT focal persons were selected from each site for the study. The respondents were included in the study based on their roles in the PMTCT programme and included doctors, nurses, pharmacists, monitoring and evaluation officers, etc. Two senior officials from the government agencies supervising the PMTCT programme were also included in the study based on their knowledge and experience of supervising the programme. In this manner, a total of fifteen respondents were selected for the study.

### 2.5 Data Collection

Data was collected over a period of four months (June 2011-September 2011). The study instrument was an interview guide adapted from the Family Health International Baseline Assessment Tools for PMTCT, a validated tool which had been used in a previous study.[14]

Key informant interviews were held with PMTCT programme officers and officials of government agencies supervising the PMTCT programme. The respondents were asked questions on their experiences of the PMTCT programme, the benefits of the programme to patients and challenges encountered in the course of implementing the programme.

## 2.6 Data Analysis

The key informant interview sessions were transcribed and analysed using thematic analysis. Recurrent themes on benefits of the PMTCT Programme and challenges facing its implementation were identified from the key informant interview sessions. Relevant quotes from the key interviews sessions are presented in line with the identified themes.

## 3. RESULTS

A total of fifteen key informant interviews were held across the seven health facilities. The key informants had been involved in the PMTCT programme for between three years to eight years.

The following themes emerged from the key informant interview sessions:

- Services provided by key informants
- Benefits of the PMTCT programme to the health facility
- Benefits of the PMTCT programme to pregnant women
- Challenges to the implementation of the PMTCT programme

### 3.1 PMTCT Services Provided by Key Informants

The key informants were involved in providing different PMTCT services. These included HIV Counselling and Testing, adherence counselling, antenatal care services (ANC), delivery services, post natal services, early infant diagnosis, dispensing antiretroviral medications, follow-up of mother-baby pairs, referring babies for early infant diagnosis (EID). Others were programme monitoring and evaluation (M&E), health education, laboratory monitoring of antiretroviral therapy (ART) and provision of post exposure prophylaxis for occupational or non-occupational exposure to HIV. All these services are aimed at ensuring that pregnant women living with HIV are identified during antenatal care, placed on

antiretroviral medications, followed-up throughout through pregnancy, labour/delivery and that her infant receives antiretroviral prophylaxis at birth, is followed up to the age of eighteen months of age to facilitate early infant diagnosis of HIV infection and referral for paediatric antiretroviral therapy if required.

### 3.2 Benefits of the PMTCT Programme to Edo State

Several benefits of PMTCT programme to Edo State as a whole were reported by the key informants. These included the renovation of health facilities and upgrade of infrastructure carried out by sponsors of the PMTCT programme at designated PMTCT sites. Other reported benefits included the training of large numbers of health workers on PMTCT, provision of free antiretroviral therapy for Persons living with HIV/AIDS and the reduction of mother-to-child transmission of HIV. Below are excerpts from the key informant interviews highlighting the benefits of the PMTCT programme to the state.

**Prevention of premature deaths:** The PMTCT programme has improved the quality of life of life of patients living with HIV and reduced the number of avoidable deaths as evidenced by this quote from a respondent:

*“The state has benefited tremendously; if this programme was not in place, a lot of people would have died because they don’t have access to antiretroviral drugs.”*

(Government official, EDOSACA)

**Upgrading of health infrastructure:** The health workers and PMTCT programme officers were unanimous in their perception that the PMTCT programme had been of immense benefit to the state through upgrade of health infrastructure, capacity building of health workers and the supply of equipment for laboratory monitoring of patients living with HIV donated by the PMTCT programme sponsors. These excerpts from the interviews with the health workers illustrate these benefits:

*“The state has benefited from training of health personnel. There is increased awareness of HIV within the state. Pregnant women now request for HIV testing apart from the routine/compulsory HIV testing.”*

(Government Official, Edo SASCP)

*"The hospital was provided with facilities and equipment for the programme. Sponsors provide HIV test kits, Early Infant Diagnosis test kits and provide of funds for early infant diagnosis. Sponsors also provide machines for HIV investigations and laboratory monitoring."*

(PMTCT Focal Person at a Private Hospital)

*"The hospital has gained immensely from supporting partners and the Government of Nigeria through capacity building conducted across board and sponsored training for members of staff in HIV care within Nigeria and beyond."*

(PMTCT Programme Co-ordinator at a public health facility)

### 3.3 Benefits of the PMTCT Programme to Pregnant Women

The key informants identified several benefits of the PMTCT programme to pregnant women. These include increased awareness of HIV among pregnant women, prevention of mother-to-child transmission of HIV and access services such as HIV counseling and testing, partner counselling, family planning and safer delivery practices.

**Reduced rate of mother-to-child transmission of HIV:** The PMTCT programme has greatly reduced the rate of mother-to-child transmission of HIV in the state. This benefit is illustrated below in this statement by one of the respondents:

*"It has reduced mother-to-child transmission of HIV in the hospital to less than 3% compared to 25%-40% in the absence of any intervention for PMTCT."*

(PMTCT programme co-ordinator in a public hospital)

**Improvement in the health status of women and children:** The health workers attested to the benefits of the PMTCT programme to the health and well-being of women and children. The excerpts from the interviews with some of the health workers illustrates these benefits:

*"The programme has saved many marriages. If a woman's children are dying, she'll be called a witch. The programme has helped*

*children to stay alive and it has helped mothers to stay alive and preserve their health."*

(Community service officer at a public hospital)

*"Improvement in maternal health; mothers who would have died from AIDS are now healthy. The patients have access to free delivery services, free ANC care free antiretroviral medications."*

(PMTCT Programme Co-ordinator at a private hospital)

**Reduced stigmatisation of HIV positive mothers:** *"HIV positive mothers on antiretroviral medications can now breastfeed their babies so the stigma associated with HIV positive mothers not breastfeeding their infants is now reduced."*

(Government Official, Edo SASCP)

### 3.4 Challenges of Providing PMTCT Services

In spite of the numerous benefits of the PMTCT programme, the respondents identified several constraints to the implementation of the PMTCT programme at the different health facilities. These constraints could be classified as health system or patient based challenges as illustrated below.

### 3.5 Health System Based Challenges

The health system based challenges reported by the key informants were inadequate funding of the PMTCT programme, stock outs of antiretroviral medication, shortage of trained manpower for the programme, heavy work load and high turnover rate of staff. Others were discriminatory attitudes of health workers towards persons living with HIV/AIDS, poor remuneration of health workers, frequent changes of the guidelines on PMTCT, delay in obtaining results from referral laboratories and time constraints. The following excerpts from the key informant interviews highlight some of the challenges to preventing mother-to-child transmission of HIV in Benin City, Edo State.

**Inadequate programme funding:** Inadequate programme funding affects all aspects of the PMTCT programme resulting in staff shortages, irregular supply of antiretroviral medications and other essential commodities. This challenge is illustrated below in the statements by some of the respondents:

“There is inadequate funding of the programme, finance is a problem.

(Physician at a private hospital)

“Non-release of funds from the State Government to ensure continuity of the programme after the programme partners pull out.”

(Government official, Edo State Agency for the Control of AIDS)

“There is insufficient funding of the programme from the state government; the funds allocated for the PMTCT programme have not been released.”

(Government Official, Edo)

### 3.6 Stock-out of Antiretroviral Medications and HIV Test Kits

“Sometimes there is delay in replenishing the antiretroviral drugs leading to stock outs of antiretroviral medications.”

(Pharmacist at a private hospital)

“There is shortage of materials from supervising agencies, irregular supply of kits”

(Physician at a private hospital)

**Shortage of skilled manpower:** The shortage of skilled manpower results in heavy workload and long waiting time at the health facilities. The statement below illustrates this challenge:

“There is inadequate manpower because government is not recruiting health personnel at both the primary and secondary health care facilities. We have serious manpower challenges; people are retiring by the day. We can’t stop them from leaving. There is attrition of staff.”

(Official at Edo SACA)

**Delay in obtaining results of laboratory investigations:** This can negatively impact the quality of care given to patients living with HIV:

“Our results are always delayed. Results are delayed for up to 5-6 weeks. We keep asking the mothers to come back for their results.

“However, things have improved of recent. The last set of tests we sent to the referral laboratory was ready in about four weeks.”

(PMTCT focal person at a private health facility)

The numerous health-system challenges identified by the respondents can negatively affect the goal of reducing the rate of mother-to-child transmission of HIV in Benin City and Edo State as a whole.

### 3.7 Patient Based Challenges Affecting the PMTCT Programme

The key informants also identified several patient based challenges affecting the performance of the PMTCT programme. These include poor adherence to antiretroviral medications by patients, defaults in clinic attendance, disbelief of HIV test results and the reluctance of patients to disclose their HIV status to their relations or health care providers. The practice of mixed feeding by HIV positive mothers was also identified as a major challenge affecting the programme. The excerpts below illustrate the patient based challenges militating against the success of the PMTCT programme in Benin City.

**Default in clinic attendance and follow-up visits:** Several patients fail to keep clinic appointments and use their antiretroviral medications as prescribed. This is illustrated below in a quote by one of the respondents:

“Patients default and do not keep to appointments.”

(Pharmacist at a public hospital)

**Denial or disbelief of HIV test results:** Many patients express disbelief of results of HIV test results. This results in substantial delay from the time HIV infection is diagnosed to when treatment is commenced in the patient. The following excerpts from the key informant interviews illustrate this point:

“Some patients live in denial; they do not believe the results of HIV tests.”

(Physician at a private health facility)

“When you tell the patient her (HIV test) result, she will tell you ‘God forbid!’”

(Counsellor at a public hospital)

**Preference for home deliveries:** For many patients, delivering their babies at home is culturally acceptable. However, this practice deprives HIV positive mothers of crucial access to safer delivery practices which will reduce the risk of mother-to-child transmission of HIV. These excerpts from the interviews with the health workers illustrates this challenge to the PMTCT programme:

“Many mothers do not deliver in the hospital. They prefer to deliver at home or in health facilities that do not have these services. (HIV) Positive mothers require active management of labour.”

(Physician at a private hospital)

“Some patients believe in traditional medicine and traditional birth attendants. Some women will tell you that their culture insists that they must be delivered by ‘Edede’ (elderly women or traditional birth attendants).”

(Counsellor at a public hospital)

“Some patients deliver at home, thus the aim of the programme is defeated” (PMTCT focal pharmacist at a public hospital)

**Patients’ reluctance to disclose their HIV status to their relations or health workers:**

This is another challenge that impacts negatively on the implementation of PMTCT programme. This practice denies patients of prompt access to antiretroviral treatment as well as the crucial from family and close relatives:

“Some patients are not very truthful. They won’t open up to you.”

(Counsellor at a public hospital)

“Some women do not disclose their HIV status to their husbands due to fear of losing their marriage.”

(Pharmacist at a private hospital)

“It is the Nigerian factor, Nigerians are too secretive”

(PMTCT focal person at a private health facility)

**Challenges with infant feeding:** The health workers identified several challenges with infant

feeding experienced by HIV positive mothers. This includes the practice of mixed feeding and the high cost of replacement feeding. Some of these challenges are captured below in an excerpt from an interview with one of the respondents:

“Some mothers prefer to breastfeed their children because of the issue of stigmatisation. Some mothers practice mixed feeding which is not healthy for the child through to pressure from family relations.”

(Monitoring & Evaluation officer at a private health facility)

**3.8 Recommendations to Overcome the Challenges Facing the PMTCT Programme**

The health workers had several recommendations to overcome the health-system challenges affecting the programme. These included deployment of health personnel to relieve the problem of staff shortages; increased government funding and training of health workers to ensure availability of sufficient manpower for the programme.

The respondents also proffered recommendations to overcome patient based challenges such as encouraging patients to disclose their HIV status to their spouses; supplying antiretroviral medications to maternity centres to cater for HIV positive women who choose not to deliver at hospitals. Other recommendations were provision of stipends for HIV positive patients and the strengthening of support group meetings to cater for patients with financial challenges. Increasing male involvement in preventing mother-to-child transmission of HIV was also recommended as a measure to overcome the some of the challenges with infant feeding faced by HIV positive mothers as illustrated by the excerpt below:

“Involving men in the PMTCT programme will help mothers to adhere to safer feeding options. This will help the husband to stand his ground and support his wife’s infant feeding options. Men should be involved in the whole process of PMTCT.”

(Monitoring & Evaluation officer at a private health facility)

#### 4. DISCUSSION

The health workers in this study reported the numerous benefits of the programme for preventing mother-to-child transmission of HIV. The PMTCT programme has far reaching benefits that impact on the lives of women living with HIV, their families, the community and the nation at large. The upgrade of health facilities that accompanied the implementation of the programme has improved the quality of health services available to members of the community. The health workers also highlighted several hurdles to the implementation of the PMTCT programme in Benin City.

Stock-out of antiretroviral medications, HIV test kits and other essential commodities may result in missed opportunities for preventing mother-to-child transmission of HIV. Irregular supply of antiretroviral medications may contribute to drug resistance among persons living with HIV. Staff shortages result in heavy work load and long waiting times at health facilities providing comprehensive services for preventing mother-to-child transmission of HIV. Long waiting time at health facilities and lengthy turn-around time for laboratory investigations impacts negatively on the quality of care provided at health facilities for these patients. This situation can also act as deterrent for patients accessing services for preventing mother-to-child transmission of HIV at such health facilities.

A major limitation of the programme identified by the respondents was insufficient programme funding. The PMTCT programme in Benin City is largely supported by funds donated by international agencies. This puts the long-term sustainability of the programme in jeopardy. The various tiers of government in the country should be encouraged to provide financial and material support to ensure the continued implementation of the PMTCT programme in Benin City and in Nigeria as a whole.

Another challenge to the implementation of the PMTCT programme is some patients' preference for home deliveries. For many patients, home deliveries and delivery by traditional birth attendants is culturally acceptable. Such practices deprive HIV positive mothers from access to safer delivery practices which greatly reduce the risks of mother-to-child transmission of HIV. In a similar vein, poor adherence to antiretroviral medications by patients living HIV increases the risk of drug resistance, treatment

failure and the likelihood of transmitting a drug-resistant strain of the virus to other members of the community.

As a result of the improved health status of persons living with HIV following the advent of antiretroviral medications, the stigmatisation of persons living with HIV has greatly reduced over the years. In addition, mass media campaigns conducted over the radio, television and in the newspapers have educated the populace on the ways by which HIV is transmitted and ways by which the virus is not transmitted. This has helped to reduce discrimination and stigmatisation of persons living with HIV over the years.

This study evaluated the PMTCT programme from the perspective of the health workers highlighting the benefits of the programme as well as the factors hindering the implementation of the programme. However, this study was unable to quantify the magnitude of the challenges hindering the implementation of the programme. Further research is required to determine the magnitude of the challenges affecting the PMTCT programme in Benin City as well as their long term effects on the goal of reducing mother-to-child transmission.

#### 5. CONCLUSION

This study evaluated the PMTCT programme in Benin City, Edo State from the perspective of the health workers. It highlighted the several benefits of the PMTCT programme to mothers, families and communities while providing unique insights into the challenges faced by health workers implementing the PMTCT programme. The health system and patient based challenges identified by the health workers can prevent attainment of the programme goal of reducing the rate of mother-to-child transmission of HIV. Sustained effort by all stakeholders is required to overcome these challenges and achievement of the goal of eliminating mother-to-child transmission of HIV globally.

#### CONSENT

Written informed consent was obtained from the study participants. The health workers were informed that participation in the study was voluntary. The study participants were assured of confidentiality and that the data collected would only used for research purposes.



## ETHICAL APPROVAL

Approval for the study was obtained at different levels. Approval was obtained from the Ethical Committee of the University of Benin Teaching Hospital. Ethical approval was also obtained from the Ethical Clearance Committee of the Edo State Ministry of Health. Permission to use each health facility was sought and obtained from heads of the health facilities involved in this study.

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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*Peer-review history:*  
*The peer review history for this paper can be accessed here:*  
<http://sciencedomain.org/review-history/17501>