Virology: Research & Reviews

Research Article ISSN: 2514-4138

Nurses and midwives' perceptions of option B+ treatment protocol for the prevention of mother-to-child transmission of HIV in Lubumbashi, Democratic Republic of Congo

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Abstract

Background : Antiretroviral combination therapy is known as option B+ for the prevention of mother-to-child transmission (PMTCT) of human immunodeficiency virus (HIV). Administration of therapy is a task delegated to nurses and midwives who are involved in pre- and post-natal consultations in the health facilities that have integrated this intervention. This study was carried out to understand the perceptions of providers in Lubumbashi, Democratic Republic of Congo regarding the tasks delegated to them, and to identify the challenges they face in implementation of option B+.

Methods: This study included 84 nurses and midwives recruited from 56 health facilities offering the B+ option of PMTCT in three health zones in Lubumbashi. We collected the data using semi-structured individual interviews conducted between September 20 and September 26, 2015. The data from these interviews were analyzed using the NVivo v11 software.

Results: The providers indicated that option B+ is a very simple approach to implement. Although the approach contributes to improving women's health and preventing HIV transmission in newborns, the social stigma associated with infection remains high because of a perceived association with promiscuity and mild behavior. Thus, pregnant women living with HIV tend to hide their HIV status, even from their family members.

Providers expressed concern about the sustainability of the monthly bonuses and financial incentives they received. They stressed the need to continue giving bonuses to providers to compensate for otherwise low wages. They also placed emphasis on improving human resource capacity as the key to successful implementation of the option B+. Regarding early diagnosis of HIV in children born to HIV-positive mothers, they indicated that widespread availability and routine administration of this test might be beneficial.

Conclusion: Non-physician providers were very enthusiastic about implementation of option B+. To expand the use of these providers as the cornerstone for successful implementation of the B+ option, regular technical support and financial incentives must be sustained over time. The major challenge will be to ensure financial premiums in a context in which resources for healthcare are already very limited.

Abbreviations: AIDS: Acquired immunodeficiency syndrome, ANCs: Antenatal clinics, ART: Antiretroviral therapy, DRC: Democratic Republic of Congo, eMTCT: elimination mother-to-child transmission, HFs: Health facilities, HIV: Human immunodeficiency virus, MNCH: Maternal, Newborn and Child Health, PLHIV: People living with HIV, PMTCT: Prevention of mother-to-child transmission, PSCs: Pre-school consultations, SANRU: Santé Rurale, UNICEF: United Nations Children Funds, WHO: World Health Organization

Background

Prevention of mother-to-child transmission (PMTCT) of human immunodeficiency virus (HIV) is one of the most effective public health interventions for HIV prevention [1]. The World Health Organization (WHO) recommends triple antiretroviral therapy (ART) in HIV-infected pregnant women to significantly reduce transmission. This recommendation, known as option B+, is a prophylactic strategy with the three antiretroviral drugs taken by the mother during pregnancy, delivery, and throughout the breastfeeding period. The newborn also takes the medications for six weeks after birth [2].

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Key words: *PMTCT, option B+, triple antiretroviral therapy, perceptions*

Received: August 03, 2017; **Accepted:** August 28, 2017; **Published:** August 30, 2017

The introduction of this approach and the adoption of the elimination mother-to-child transmission (eMTCT) plan in the Democratic Republic of Congo (DRC) involved many operational adjustments for effective implementation. Such operational adjustments included, among other things, the organization of service delivery, logistics for the continuous supply of antiretroviral drugs, methods to satisfy increased demand for quality care services, approaches for retention of pregnant and HIV-infected mothers and their children in the program, and training and supervision of providers [3-7].

It is noted that prior to 2013, ART was only prescribed by physicians. Before launching the pilot phase of the B+ option in the province of Haut-Katanga in September 2013, the country revised its HIV policy and introduced a shifting of responsibilities to increase the number of providers who can prescribe and monitor ART for pregnant women and their families living with HIV. This strategy, adopted in the DRC and elsewhere [8,9], demonstrated that these non-physician providers have better adherence to national guidelines, and that with this task-shifting they contributed to accelerated implementation and increased coverage of interventions. However, as these providers continue to carry out their basic tasks, including social and psychological support for retention in health care, along with providing curative and preventive care in their health facilities (HFs), their overall volume of work has substantially increased [10]. To maintain service performance in this context, the main challenges include providing adequate training and sustained mentoring, increasing compensation for providers in their new roles, and integrating new members into health care teams [11-13]. Understanding how these providers are experiencing this task-shifting and the challenges they face is also important in identifying factors that may be limiting the success of the strategy. This study was carried out to understand the perceptions of the providers in the city of Lubumbashi in Haut-Katanga Province involved in the implementation of the PMTCT B+ option.

Methods

Study environment and population

This study was carried out in Lubumbashi, in the province of Haut-Katanga. We included 56 HFs that provided PMTCT services in six health zones (Kampemba, Kisanga, Kenya Lubumbashi, Rwashi,and Tshamilemba) where this intervention had already been integrated. In each of the HFs, we included non-physician care providers who worked in antenatal clinics (ANCs) and pre-school consultations (PSCs). The providers were responsible for prescribing ART and monitoring HIV-infected mothers and their children who were exposed or infected with HIV. The list of HFs included in the study is presented in the supplemental file "TS1." In these 56 HFs, 106 providers were responsible for PMTCT activities; 84 of the providers were present on the day of the survey and were included in this study.

Study

This study represents the qualitative part of the mixed method used to evaluate the UNICEF-supported PMTCT + pilot program in the previously mentioned health zones. This evaluation was conducted from July to September, 2015. The data collection for the qualitative and quantitative components of the evaluation was concurrent. While the quantitative part of the evaluation was based on the progression through the stages of care and the measurement of the rate of MTCT, the qualitative component presented in this work was phenomenological.

Data were collected through semi-structured individual interviews with non-physician providers who met the criteria specified above. The interview was carried out in two phases over two days. The first day was dedicated primarily to socializing with the provider and setting up the interview, while the second day was devoted to conducting the actual interview.

The interviews were conducted in French, with two interviewers present for each provider interviewed. One of the interviewers conducted the interview and took notes simultaneously, while the second was occupied solely with taking notes. All interviews took place during the day and during working hours, and the average interview duration was 30 minutes. Each participant provided informed consent to participate in the investigation, and the study protocol was approved by the DRC National Ethics Committee. The following three open-ended questions were used to guide the discussions: 1) "What do you think about PMTCT services in general?"; 2) "What do you think about the B+ services that have just been introduced?"; 3) "What are the expectations of providers for successful implementation of the B+ option PMTCT services across the country?"

Data analysis

After each interview, the two interviewers consolidated their notes and transcribed them using Microsoft Word. The notes were first analyzed to identify the main categories of the responses, which pertained to the operational phases of the PMTCT. The responses were then thematically analyzed based on each of these phases. The NVivo v11 software was used for the analysis. We used the Piot P. model to understand providers' perceptions.

Results

Quantitative data and demographic profile of participants

A total of 84 providers, 44 (52.4%) women and 40 (47.6%) men, were interviewed. They included 37 individuals with nursing degrees. Fifty-five (65.5%) providers had at least 10 years of professional experience in the care of people living with HIV (PLHIV), including PMTCT. All providers were trained in administering the B+ option.

Qualitative data

We identified four key themes of these interviews: (a) prevention of mother-to-child transmission of HIV is effective, but treatment protocols are complex; (b) the B+ option with the universal use of ART for HIV-infected pregnant women is simple and easy to implement; (c) social stigma remains very important; (d) and providers have suggestions for optimal B+ option implementation. We discuss each theme and provide narrative examples below.

PMTCT is an effective intervention, but therapeutic protocols are complex

Participants in the survey indicated that PMTCT has created hope among pregnant women living with HIV and their children. The following excerpts illustrate the views of participants:

"(…) I have been working here since 1995 and HIV-positive pregnant women were the people who were going to die after childbirth. At that time, they delivered the children either stillborn or they would die a few weeks or months after birth. There was no hope for them. But today, these women have the hope of having the children who will live."

"(...) *I know many HIV-positive women who used antiretroviral drugs during pregnancy and childbirth and whose children were HIV-negative. These treatments work well."*

"(...) Children no longer die after birth because of the AIDS of their mothers as before."

Before the introduction of the B+ option, PMTCT treatment regimens were complex and sometimes difficult to follow. The participants expressed it in the following terms:

"(...) at the time, PMTCT treatment regimens were very complex compared to those used to treat PVV. We were juggling with the CD4. It was very difficult."

"(...) Only the use of the nevirapine tablet that was to be given to the pregnant woman at the time of delivery was simple. Otherwise, everything was complicated. Sometimes the antiretroviral drugs had to be started and sometimes they had to be stopped."

"(...) *CD4 levels changed from one consultation to another and this caused a lot of confusion as to what to do. I remember two patients who had come up with CD4 levels just under 350. When we repeated them in our hospital, those rates had come back above 350 without having received the treatment. So, we did not know if we had to cancel the prescription of the ART that we had already given them and simply give the prophylaxis, or else allow them to start despite the ART."*

The B + option is simple and easy to implement

As per the participants in this study, the B+ option is a very simple approach to implement and has been instrumental in initiating ART without delay in HIV-positive pregnant women. Participants expressed it in these terms:

"(...) With the B+ option, things are very simple - a single tablet that we give pregnant women as soon as the HIV test returns positive. And that's all. The woman takes it once a day without much problem."

"(...) There are no longer stories of taking the samples to send to the lab for CD4 results, which took many days or even weeks to get back."

"(...) Now, we do not do the 3 sessions of advice before starting the ART. As soon as the diagnosis of AIDS is made in the pregnant woman, treatment is started immediately. This gives hope to the sick."

"(...) Things have become very simple now. We receive pregnant women, we test them for the VH. If it is positive immediately, they are given the medication."

The B+ option services are very simple to offer. This treatment improves women's health and at the same time prevents HIV transmission in newborns. The participants provided the following comments:

"(...) With the B+ option, things have changed a lot. HIV-positive pregnant women live easily after childbirth and most of their children who are born are HIV-negative. I have not heard of deaths because of AIDS after childbirth among the sick."

"(...) Now we tell them that you will feel good and your child will be HIV-negative if you follow the advice and take the medication."

"(...) With the B+ option, everything seems to be better. HIV-positive pregnant women begin the same day of the first consultation. You see, it's like malaria. As soon as the thick drop is positive, you start the treatment. There is no more 'appointments and appointments…' before deciding to do something for them."

The social stigma of HIV remains very important

There is a significant social stigma associated with HIV infection in the Congolese community. The population very often associates HIV infection with sexual promiscuity and mild morals. Thus, pregnant women living with HIV often hide their HIV status, even from family members. The participants described the situation in the following terms:

"*Sex is taboo in our environment and AIDS is very often transmitted through sexual intercourse. There is always a huge stigma for AIDS because HIV-positive women are not well-accepted by others. Those who are HIV-positive are considered prostitutes and dirty."*

"(...) Churches say that AIDS is the presence of devils and that those who suffer from it are inhabited by demons. This is how some pastors teach and all believers follow them in this thought."

"... Churches say that those who suffer are sinners and must repent and be delivered. If pregnant women are widows, they are said to have killed their husbands with sorcery. One does not approach a witch-person; that's how people think."

"(...) Other family members are also afraid to touch HIV-positive women. They think they may be contaminated."

"(...) Some providers are also afraid to touch their HIV-positive patients. In other health facilities, some health professionals do not review PLHIV. They often send trainees to do so."

"... In the case of HIV, there is sometimes a reverse stigma which ultimately contributes to stress. Women do not talk about their HIV status. They do not disclose at all when they are HIV-positive. This creates an inverse stigma."

"(...) Pregnant HIV-positive women tend to isolate themselves. They do not talk to other women and they are often sad. I think we have not made any progress towards reducing stigma."

Suggestions for the best implementation of option B+

Participants in the survey felt that organizational factors played a significant role in the quality of services offered to women under the B+ option. These elements can be grouped into four broad suggestions: 1) Secure funding to motivate providers; 2) Provide ongoing training in comprehensive care; 3) Improve access to early HIV testing in infants as quickly as possible; 4) Improve access to free specialized medical care for newborns and complicated cases of HIV infection.

Participants were very concerned about the sustainability of the monthly bonuses and financial incentives they receive. The participants' narratives highlight the need for the implementation of sustainable financial incentives to compensate for low wages. They expressed it in the following way:

"(...) The general problem is that HIV-positive people do not pay for care. This is a good thing because it's a chronic disease. But how will we receive our bonuses if organizations like UNICEF no longer do? It is the payments of patients that allow us to receive our premiums. Our salaries are very meager. Without the bonuses, we will not be able to live."

"(...) Some of us are not mechanized. So, they only live on bonuses that the health facilities give them with the support of partners. If these partners stop their support and the patients do not pay for the services, where will the money come from to pay us the premiums? This will be very difficult for many of us."

As per participants, strengthening human resource capacity, such as training to continue providing quality care, is key to successful implementation of the B+ option. The participants expressed it in the following terms:

"(...) We need to continue to be trained because science is evolving rapidly. In addition to these trainings, we would like those who supervise us to be able to solve the medical problems that we sometimes encounter."

"(...) Many people visit our centers and we are told that they are either experts or program coordinators. But when we present problems to them on the care of the sick, they do not help us often."

"(...) I find that the experts must share their knowledge with us. But very often, they just look at the sick records and count the numbers. There is only one person who helps us if we have problems."

Regarding early diagnosis of HIV in children born to HIV-positive mothers, participants said it could be beneficial if the testing became routine and available in all health centers. The participants expressed it in the following terms:

"(…) Everyone says that samples should be taken for early diagnosis. But when we do, sometimes nobody comes to take them to the laboratory either in Kinshasa or here in town. This discourages them from continuing to do so."

"(...) Early diagnosis results do not return in time. We can wait 2 or even 4 months before receiving them. Sometimes you do not see anything. This is sometimes discouraging for us and for mothers who do not know what to say."

"People coming from Zambia tell us that there are machines for early diagnosis. Why don't we buy them here? If these machines are in the reference hospitals of each health zone, perhaps things can become good."

Discussion

Our study has shown that the perception of HIV infection, once considered fatal, has changed over time with the introduction of PMTCT in the DRC into a manageable chronic infection for mothers. In addition, the introduced PMTCT interventions have been effective in preventing infection in newborns, as other researchers have previously demonstrated [14]. Like other researchers [15], we found providers believed that antiretroviral combination therapy led to dramatic improvements in the survival of women living with HIV. Participants in this survey were also convinced that initiation of ART immediately after diagnosis improved health and reduced mortality.

Our findings are consistent with those of other studies [16-19] in which it was found that implementation of PMTCT services for pregnant women improves the coverage and acceptability of screening and related services. Our findings that providers' organization and motivation play a crucial role in improving the use of HIV testing and PMTCT services are also consistent with those of previous studies [10]. Factors such as lack of staff motivation and inadequate laboratory services were cited as barriers to the provision of these services. The availability of services for HIV-exposed children, including the virological test for early diagnosis of HIV, is still very limited in DRC and other African countries such as Zimbabwe, Tanzania, and Uganda [15].

Interestingly, B+ service providers reported that they need continuing education, technical support, and facilitated supervision to resolve clinical problems. As in other places, this support is not always available [16,17]. While it is believed that providers often complain about the increased volume of work, this was not the case in the present study. Bisnauth, *et al.* observed similar results in a South African study [21].

Participants in our study felt that effective training programs for prescribers should be organized on an ongoing basis to help them embrace new approaches to better treat their patients. This issue was also identified by Helova, *et al.* in Kenya [19]. Participants in this survey also emphasized the need for the availability of specialized reference services for difficult cases. The information obtained by the responses during the discussions with the providers is taken care of by others [19]. Financial support for providers is an important element in the delivery and supply of health services in general and in the B+ option. Our study found that access to B+ option services may be compromised if providers do not receive technical support and financial assistance. Providers' financial motivation has been shown to be central to the provision of health services, with implementation of the B+ option being no exception [20,21]. Another perception was that integrating B+ services with other maternal, newborn and child health (MNCH) services led to improved provider performance. This integration also played an important role in the motivation and confidence of providers in the performance of their work.

It is noted that this study has some limitations. Due to the very limited data collection time, information provided by the participants was not triangulated with the observation data. A participatory observation would also verify whether the context of the work was consistent with all statements. This may have created the unintended consequences of this intervention. Despite these limitations, the information gathered in this study is consistent with the literature and contains elements that deserve consideration within the context of scaling up implementation of the B+ option.

Conclusion

Providers find that the B+ option has been indispensable for HIV prevention among newborns and the survival of their mothers. Citing examples of their personal experiences, most interview participants reported tangible cases of success with this approach.

The implementation of this strategy was considered simple by all providers, despite the challenges to be met for achieving sustainability. These challenges include financial support, continuous supply of resources for integrated postnatal care, technical supervision, accessibility to medical expertise for difficult cases, and the social stigma associated with HIV. Despite positive outcomes with the B+ option, the persistence of a social stigma associated with HIV infection, along with its interference with clinical efforts and social support, should remain areas of focus for improvement.

Ethics approval and consent to participate

Each participant provided informed consent to participate in the investigation, and the study protocol was approved by the DRC National Ethics Committee.

Consent for publication

Not applicable.

Availability of data and materials

Not applicable

Competing interests

The authors declare that they have no conflict of interest in the present research.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article

Authors' contributions

DM, SV and AMN conceptualized the research question. DM, SV and AMN conceived of the study, its design and participated in its coordination, conducted the statistical analysis, wrote the methods, results, helped to draft the manuscript and incorporated comments from co-authors for the final draft. FS, EN, NM, AK, GC, NMK and FF participated in the design of the study and coordination (collection of data) and helped to draft the manuscript. DM and AMN conducted the statistical analysis, wrote the methods and proof read the manuscript critically. FS, EN, AK and NM wrote the methods and proof read the manuscript critically. DM and AMN wrote the first draft of the paper, wrote the background information, discussion and proof-read the drafts before submission. All authors read and approved the final draft of the manuscript.

Acknowledgements

We wish to thank the National AIDS & STD Programme for facilitating this study. We are grateful to Tabitha Ilunga et Charles Matungulu for their role in conducting interviews and focus group discussions.

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