

Pregnant women's knowledge about Mother-to-Child Transmission (MTCT) of HIV infection through breast feeding

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The HIV and AIDS epidemic in South Africa has reached serious proportions. Over 5, 5 million South Africans are infected with HIV (Department of Health, 2004: 10). Mother to Child Transmission (MTCT) is a well-established mode of HIV transmission and these infections may occur during pregnancy, labour, delivery and breastfeeding. According to the Department of Health (2000: 2), breastfeeding constitutes a significant risk of MTCT HIV transmission. Studies in Africa have also shown that breast-feeding increases the risk of MTCT by 12%-43% (Department of Health, 2000: 13; Department of Health, 2000:3). Since breastfeeding is a significant and preventable mode of HIV transmission to infants, there is an urgent need to educate, counsel and support women and families to make informed decisions about how best to feed their infants in the context of HIV. To achieve a reduction in MTCT, there is an urgent need to empower women with information on MTCT for informed decision-making. However, cultural factors and the stigma associated with HIV and AIDS might contribute to limited knowledge about MTCT through breastfeeding.

The aim of the study was to determine pregnant women's knowledge about MTCT of HIV/AIDS infection through breastfeeding. Findings of the study will be used to update the existing health education programmes in the field of Maternal and Child Health. The design was a descriptive research survey. The population consisted of 100 pregnant women. Convenience sampling was used to select mothers during antenatal visits at a particular clinic at Polokwane municipality. Self-constructed questionnaires were translated into Northern Sotho and distributed to the women. Data analysis used descriptive statistics. The findings of the study revealed a high level of awareness of HIV and AIDS and a low level of knowledge about MTCT of HIV and AIDS infection through breastfeeding. Based on the conclusions, a revised health education programme was proposed for the Maternal and Child Health field.

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Introduction

The HIV and AIDS epidemic in South Africa has reached serious proportions. Over 5,5 million South Africans are infected with HIV and a vast majority of these infections are in the reproductive age group, newborn infants and children under the age of one year (Department of Health, 2004: 10). The HIV and AIDS epidemic threatens breastfeeding as the virus can be transmitted through breast-milk. Mother-To-Child-Transmission (MTCT) of HIV is an urgent and growing problem in resource-poor settings. It has been estimated that with no preventive measures taken, the risk of transmission in Sub-Saharan Africa is 21%-45% (Msellati; Newell & Dabies, 1995: 506), with breastfeeding accounting for at least a third of that risk (Peckham & Gibb, 1995: 298). Infant feeding has become one of the most difficult issues that Prevention of Mother- to- Child Transmission (PMTCT) programmes confront because infants born from HIV positive women might contract the virus through breast milk if an infant is breastfed for a fairly long time or if mixed feeding is practised. On the other hand, if the mother does not breastfeed, her infant might face a six times greater chance of dying during the first two months of life from infectious diseases such as diarrhoea and respiratory infections (Department of Health, 2000: 3).

Breastfeeding provides optimal nutrition for infants as well as protection from diseases and infections. MTCT is a well-established mode of HIV transmission because the human immunodeficiency virus (HIV) is transmitted through breast milk if the mother is infected with the HIV virus (Coutsoudis, 2005: 88).

Studies in Africa have shown that breastfeeding increases the risk of MTCT by 12%-43% (Department of Health, 2000: 13; Department of Health, 2000:3). This means that approximately a third to a half of all MTCT could be due to breastfeeding. It was further indicated that approximately 25%-30% of HIV infected mothers in South Africa would transmit HIV infection to their children (Department of Health, 2000: 13; Department of Health, 2000:3). Filteau (2003: 25) mentioned that breastfeeding significantly increases the proportion of infants becoming infected. Hence, in industrialised countries, where there is access to safe, nutritionally adequate breast milk substitutes HIV infected women are advised not to breastfeed. In

developing countries this pandemic is combined with poverty, drought and illiteracy leaving the women with fewer coping skills. As indicated by the Department of Health (2000: 24), breastfeeding significantly contributes to a risk of MTCT of HIV.

Coutsoudis (2005: 88) indicates that several large, well- designed prospective cohort studies in South Africa, Zimbabwe, Cote D'Ivoire and Zambia examined the effect of exclusive breast feeding on the risk of HIV transmission via breastfeeding. The preliminary results confirmed that exclusive breastfeeding carries a much lower risk of HIV transmission than mixed feeding. Knowledge and perceptions of and attitudes to HIV and AIDS are thus important precursors for behavioural responses to the disease.

Problem statement

Breastfeeding is the norm in most African cultures and a woman who does not breastfeed may be criticised by her family or other members in the community. Lyall (1998: 127) also states that in communities where most mothers breastfeed their infants, a woman who does not breastfeed her infant may be suspected of being HIV-positive. This may lead to social stigmatisation and discrimination.

Voluntary Counselling and Testing (VCT) is the entry point to the health care delivery system. However, not all women agree to be tested and some of those who have been tested are not interested in knowing their status, while not all those who have tested HIV positive will take anti-retroviral drugs or give birth in health facilities. Lyall (1998: 128) mentions that the reasons why women are reluctant to participate in VCT/PMTCT programmes or are dropping out of these programmes were stigmatisation and the discrimination attached to people living with HIV and AIDS.

"Millennium Development Goal 4" intends to reduce the proportion of infants infected with HIV by 20% by 2005 and by 50% by 2010 (<http://www.WHO/UNAIDS/UNICEF>, 2000). In an attempt to contribute to meeting this goal, the researchers explored the knowledge of pregnant women of MTCT infection through breastfeeding.

Research question

The following research question was

posed to the respondents:

- What knowledge do pregnant women possess with regard to MTCT of HIV through breastfeeding?

Purpose and objective of the study

The purpose of the study was to determine the knowledge of pregnant women with regard to MTCT of HIV through breastfeeding. The findings of the study will be used to up-date the existing health education programmes in the Maternal and Child Health field at clinics in the Limpopo Province.

In order to achieve this purpose the objectives were as follows:

- To explore and describe the pregnant women's basic knowledge of HIV and AIDS.
- To explore and describe the pregnant women's knowledge of MTCT infection through breastfeeding.
- To up-date the existing health education programmes at clinics in the Limpopo Province.

Definition of terms

Mother-To-Child-Transmission of HIV

Mother-To-Child-Transmission refers to the transmission of the HIV virus from the mother to the child:

- during pregnancy across the placenta;
- at the time of labour and birth through blood and secretions;
- through breastfeeding (Department of Health, 2000: 22).

Research methodology

Research design and method

A quantitative research approach was followed. The survey design was used to obtain information from the pregnant women. This design was chosen because it enabled the researchers to collect information from the participants regarding their knowledge of MTCT of HIV and AIDS through breastfeeding among pregnant women, in the Polokwane municipality in the Limpopo Province. Data were collected through self-administered questionnaires.

Population and sampling

The population included pregnant

Table 1: Profile of pregnant women recruited for the study (n =100)

Characteristic	Frequency
1. Age in years on your last birthday	
12-16	03
17-21	17
22-26	30
27-31	30
32-36	20
37+-	
2. Parity	
Primigravida	49
Para 2-3	21
Para 4-5	20
Para >6	10
3. Cultural\ ethnic group	
Northern Sotho	70
Tsonga	12
Venda	9
Zulu	3
Xhosa	4
Tswana	1
Swazi	0
Asian	0
White	0
Other (Zimbabwean)	1
4. Family status	
Married	45
Single	50
Divorced	5
Widowed	0
5. Religious affiliation	
Lutheran	20
Dutch Reformed Church (NG)	10
Zion Christian Church (ZCC)	50
Apostolic Church	20
Other	0
6. Educational level	
Never literate	10
Primary school literate	10
Secondary school literate	55
Tertiary Institution	25
7. Participation in formal childbirth preparation classes	
Yes	0
No	100
11. Undergone VCT	
Yes	70
No	30

women who were attending antenatal care at a particular clinic in the Polokwane municipality irrespective of their HIV status. Convenience sampling was utilised. The sampling was done by placing small papers in a bowl with

numbers 1-100 and 100 blank papers. Mothers who picked papers with numbers were included in the study and those with blank papers were excluded. The total of 100 pregnant women who had volunteered to participate was

included in the study.

Data collection and analysis

In preparation for collecting the required data, questionnaires were pre-tested amongst six mothers from the same clinic and these pregnant women were excluded from the study. The pre-testing was done to ensure that the instructions were clear and the questions were phrased correctly. A refinement of the questions was also done. The only refinement was to reconstruct the instruction after consultation with the participants as some responses seemed to be misinterpreted and were revealing their possible HIV positive status.

The process of data collection took place over a period of three months from June to August 2005. The self-constructed questionnaires were translated into the local language (Sepedi) and were distributed to pregnant women during their antenatal visits. Pregnant women were given time in a quiet room to complete the questionnaires, and these were collected before they left the clinic. This process took place in a separate room to ensure confidentiality and privacy. The researchers assisted those pregnant women who were illiterate with the completion of the questionnaire and structured interviews were conducted for these participants.

The numerical scale that accommodated positive and negative indexes was used to collect the data. The scale included indexes like strongly agree, agree, disagree, strongly disagree and not sure (De Vos, 2002: 190). The focus was on the:

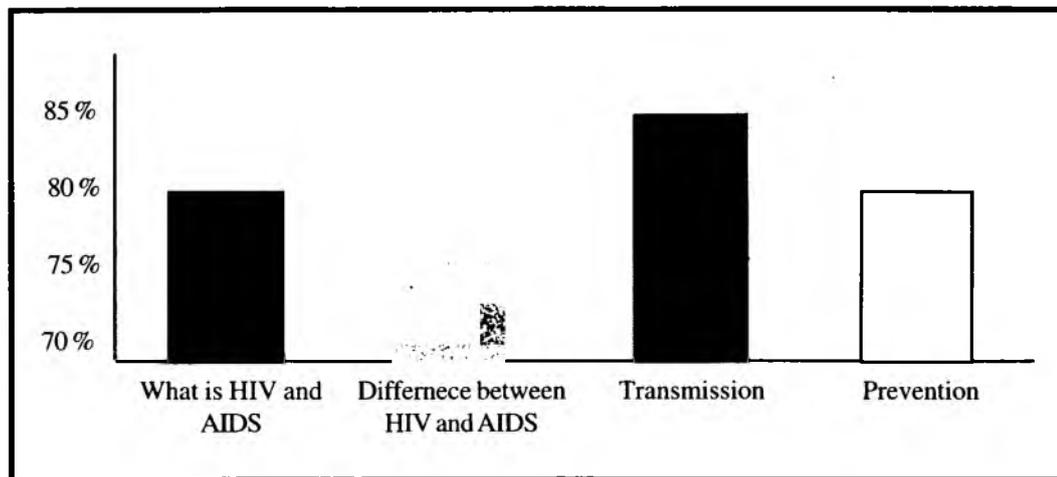
- Knowledge of basic facts about HIV and AIDS.
- Knowledge of factors which may affect MTCT of HIV as adapted from the Department of Health in WHO (2000: 6).

Data obtained from the questionnaires were analysed by means of descriptive statistics.

Validity and reliability

To ensure validity the researchers pre-tested the questionnaires through conducting of pilot study and the results achieved during the pre-testing were also achieved during the actual study. A

Figure 1 Knowledge of HIV and AIDS basic facts



structured interview questionnaire was used to ensure that all the participants were asked the same set of questions in the same sequence. A separate room was used to ensure privacy during the interviews.

Ethical considerations

Ethical considerations were based on the DENOSA Ethical Standards for Nurse Researchers (Democratic Nurses Association of South Africa, 1998: 2.3.2-2.3.4). Permission to access the facility and to sample the pregnant women was obtained from the Department of Health and Social Welfare and the clinic supervisor. Each pregnant woman was provided with information regarding her participation. The right to self-determination was ensured by obtaining informed consent from the participants. The parents of pregnant women who

were under the age of 18 years and who had no objection to their daughters' participation in the study were requested to sign the consent forms and those who were illiterate to give verbal consent. Confidentiality and anonymity were ensured by protecting the participants' identity, privacy, worth and dignity by ensuring that no connection between the participant and the research data could be made. There was no victimization of participants who refused to participate in the research.

**Discussion of findings
Knowledge of basic facts, HIV and AIDS knowledge**

The findings of the study revealed a high level of awareness on basic facts about HIV and AIDS. This might be due to the fact that (n= 70) 70% of the pregnant

women had undergone VCT. Figure 1 indicates the results of the 100 respondents who participated in this study.

According to the findings of the study, (n=85) 85% of the participants demonstrated a high level of knowledge of the basic facts concerning the transmission of HIV and AIDS. Eighty percent of the respondents also had a high level of knowledge on the basic facts regarding the prevention of HIV and

AIDS. In addition, (n=75) 75% of the respondents knew the difference between HIV and AIDS.

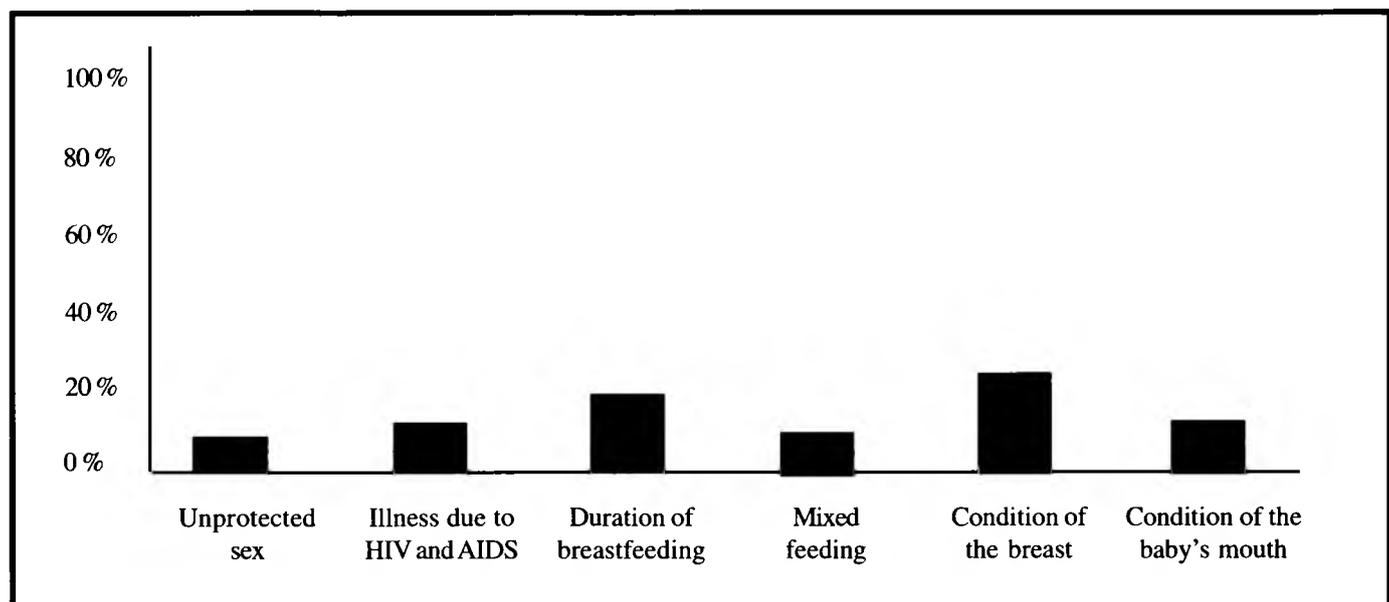
Factors which may affect MTCT of HIV

This study also revealed that pregnant women had inadequate knowledge on MTCT of HIV and AIDS through breastfeeding, as indicated in Figure 2.

Discussion

One of the principal gains in maternal and child health during the past few decades has been the revival of breastfeeding. The immediate and long-term benefits of breastfeeding have been well-documented (Wilson, Naidoo, Bekker, Cotton & Maartens, 2005: 296). The HIV epidemic, has however, made it impossible to have a uniform policy on

Figure 2 : Factors which may affect MTCT of HIV (adapted from WHO, 2000:6)



breastfeeding for the rich and poor countries (Wilson et al, 2005: 295). Raisler and Cohn (2005:279) also revealed that MTCT through breastfeeding seems to be highest in women who have new infections, a high maternal viral load, a depressed immune system, mastitis, breast abscess, cracked or bleeding nipples, or in cases where the infant has oral thrush.

Unprotected sex while breastfeeding

When an HIV positive mother engages in unprotected sex while breastfeeding, there is a risk of re-infection, which increases the risk in MTCT of HIV. In this study only (n=8) 8% of the pregnant women displayed understanding of this factor while, (n=20) 20% of the participants were not sure whether engaging in protected or unprotected sex while breastfeeding could increase the risk of MTCT. The Department of Health (2000: 17) guidelines highlighted the need for pregnant women to avoid any new infections while breastfeeding as this is considered to be a very powerful risk for MTCT. Wilson et al (2005: 298) also indicate that health care workers and counsellors should be actively involved in educating mothers on the risks of HIV and guide them on how to stay free of HIV when breastfeeding.

Illness due to HIV and AIDS related diseases

When primary maternal HIV infection occurs during breastfeeding there is an increased risk of transmission to the infant, as the mother will have a high level of HIV in her blood immediately after infection (Dunn, Newel & Ades, 1992: 586; Palasanthiran, Ziegler & Stewart, 1993: 442). The risk of mother to child HIV transmission is high during breastfeeding because the nursing mother has a high viral load especially immediately after infection. The Department of Health Guidelines in Wilson et al (2005: 298) indicate that MTCT from breastfeeding is also influenced by the stage of the HIV, conditions in the mother and during the acuteness of HIV infection, if there are symptoms of AIDS, or immune deficiency (signs of opportunistic diseases or a low CD4 cell count), high viral load and vitamin A deficiency in the mother and baby and during the breastfeeding period. The findings of the study revealed that

only (n=13) 13% of the pregnant women knew that continuing with breastfeeding while suffering from HIV and AIDS related diseases may put the baby at risk of MTCT.

Duration of breastfeeding

In Africa prolonged breastfeeding is the norm while safe alternative methods of infant feeding are usually unavailable, unaffordable, or culturally unacceptable (Raisler & Cohn, 2005: 276). This study revealed that pregnant women had limited knowledge of the safe duration of breastfeeding. Only (n=20) 20% of the pregnant women knew that if the mother was HIV positive and had been breastfeeding the baby for six months or more, the baby might be at risk to MTCT of HIV infection. In support of this notion, Denison (2002: <http://www.TheBody.Com>) stated that the longer the baby is exposed to HIV infection through breast milk, the higher is the risk of the baby contracting HIV infection. However, when breastfeeding is stopped at six months, the risk of transmission is reduced to as little as 5% compared to 14% with longer periods of breastfeeding. Wilson et al (2005: 301) further mention that it is advisable to stop breastfeeding at four months and where there is access to safe nutritionally adequate breast milk substitutes; women should be advised not to breastfeed at all.

Mixed feeding

There is growing evidence that mixed feeding carries a considerably increased risk of HIV transmission. The implementers of PMTCT programmes should, therefore, be cautious about the distribution of free formula milk, as this practice seems to encourage mixed feeding (Jackson, Chopra, Doherty & Ashworth, 2004: 1; Coutsooudis, Goga & Rollins, 2002: 153).

Mixed feeding is regarded as the most dangerous method of infant feeding even though the exact mechanism through which infants become infected through breastfeeding is not yet well understood. The findings of this study also indicated that only (n=10) 10% of the pregnant women understood the rationale for exclusive breastfeeding by stating that the introduction of any other food or drinks at the same time with breastfeeding puts the baby at risk of MTCT. The introduction of formula milk may interfere with the integrity of the gut mucosa of the infants even within the

first week of life and may increase the likelihood of transmission. Van de Perre (1999: 503) mentions that it has been suggested that MTCT occurs primarily through contact between the virus and the infant's mucosal surfaces. It was further speculated by Coutsooudis (2005: 89) that HIV may enter through breaches in the mucosal barrier, or through infection of mucosal associated lymphoid tissue. If a cell-free or cell-associated virus is able to infect lymphocytes in the submucosa by passing through disruptions in the intestinal epithelial, the damage may increase the risk of HIV transmission. The damage on the gut might make it easier for the virus to enter the baby's system. Coutsooudis (2005:88) also indicates that preliminary results of the Zimbabwean and Cote d'Ivoire studies, presented at the International AIDS Conference in Bangkok in July 2004, confirmed that exclusive breastfeeding carries a much lower risk of HIV transmission than mixed feeding.

Women who choose to breastfeed their babies are counselled to consider exclusive breastfeeding because of the possible dangers of gut-wall damage. This is a difficult concept for most of the mothers to understand because it is culturally acceptable to give water and herbal teas early during breastfeeding and to introduce solids such as infant cereals, within the first month of life (Coutsooudis, Pillay, Spooner & Kuhn, 1999: 472).

Condition of the breast

Mothers who have cracked nipples or sores on the nipples should be advised not to breastfeed their babies. Instead, they should be advised to express and heat the milk until the nipples are healed. The logistics of the method of heating is complicated; fuel or heat source and skills to avoid contamination are needed. The method (Pretoria Pasteurisation) uses the principle of heat transfer from the 450ml water heated to boiling point in an aluminium pot to a smaller volume of milk in a glass jar placed into the water (Jeffrey & Mercer, 2000:219). Breast pathology such as mastitis or a cracked nipple, especially if the nipple is bleeding may increase the risk of MTCT of HIV through breastfeeding. In this study, only (n=26) 26% of the pregnant women displayed an understanding of this risk factor.

Condition of the baby's mouth

Oral thrush makes it easier for the virus

to get into the system of the baby through the damaged mucus membrane of the mouth. In this study only (n=14) 14% of the pregnant women displayed an understanding of this risk factor. Oral candidiasis in babies should be treated as soon as it is diagnosed. The baby should be taken to the health facility for further management like tube feeding if indicated.

Conclusions

Breastfeeding is regarded as the BEST method of infant feeding because of its advantages. The UNICEF, WHO and UNAIDS (<http://www.unicef.org/programme/breastfeeding>, 2005), recommend exclusive breastfeeding because it has the best benefits to both mother and baby. Breastfeeding should thus be protected, promoted and supported wherever possible.

Filteau (2003: 25) is of the opinion that breastfeeding significantly increases the proportion of infants becoming infected with HIV. The choice not to breastfeed is especially difficult for poor women in developing countries. These women may have inadequate access to resources, breast milk substitutes, equipment, fuel, education and health care (Latham & Greiner, 1998: 737). The decision not to breastfeed increases the risks of early pregnancy and the birth of another HIV infected infant.

The findings of the study revealed a high level of awareness of HIV and AIDS and a low level knowledge about MTCT of HIV and AIDS infection through breastfeeding. It is envisaged that with more information regarding factors that influence the MTCT through breastfeeding, mothers will be empowered to make informed and appropriate choices regarding infant feeding.

In the past breastfeeding was the method of choice for all babies. However, with the high incidence of HIV and AIDS in developing countries, health education on infant feeding is no longer a simple matter. Health policymakers and medical practitioners should consider women, including poor women, as full partners in decision-making about breastfeeding and HIV transmission (Misihairabwi, Sabatier & Chikukwa, 1998: 12). Endeavours should not only focus on the palliative treatment of the infected child, but should also focus on ensuring that the

child is given life by insuring that pregnant women have access to information about post-natal transmission through breastfeeding and available interventions during pregnancy.

Recommendations

Voluntary Counselling and Testing should be encouraged and emphasis should be on counselling on infant feeding and support on the option chosen. Information on all factors which may affect MTCT of HIV should also be included in the health education given to the mother.

The following recommendations are intended to update the existing health education content given to pregnant women during the antenatal care and infant feeding counselling session.

The content of the health education should focus on:

- The prevention of HIV-infection and re-infection during breastfeeding by strengthening health education on the importance of condom usage throughout the breastfeeding period and when the mother is suffering from HIV and AIDS related illnesses.
- Advantages of exclusive breastfeeding to be emphasised to **ALL** mothers for the first six months.
- The importance of a shorter duration of exclusive breastfeeding for six months unless replacement feeding is acceptable, feasible, affordable, sustainable and safe for the woman and the infant before that time.
- The prevention and treatment of breast problems by good management of lactation which encourages proper attachment of the infant to the nipple and frequent emptying of the breast.
- Good lactation management to enable the infant to get hind milk during breastfeeding so that the baby will be satisfied and this will limit the practices of mixed feeding for crying babies.
- The mother should be educated on the importance of early recognition and treatment of

sores or oral thrush in the infant.

- When the mother develops mastitis or breast abscesses, she should be educated that she should express milk from the affected breast frequently and discard it and continue feeding the baby from the unaffected breast.

For health education to be effective, it should be ensured that breastfeeding is protected, promoted and supported, the following should be taken into consideration:

- Supporting women through their efforts to explore, utilise and control resources around them and helping them to discover and generate new resources, empower women to make decisions which reflect an awareness of their reproductive rights.
- Campaigns to focus on community involvement in the fight against the HIV and AIDS pandemic are of the utmost importance. Family members should be encouraged to be supportive of women with HIV infections and should also accept the varied approaches to infant feeding that the women have chosen.
- Couple counselling should be encouraged. The partner should also understand the mother's situation and support her.
- Ensure that family planning and health counselling services are universally available to maximise the HIV-positive woman's chances of preventing pregnancy or avoiding transmitting the virus to her baby, to support her materially and emotionally in her choice of feeding method and to provide care to a baby who may not have the protective benefits of breastfeeding.
- Strengthening of prevention efforts to protect women, especially adolescents from being infected with HIV, thereby reducing the possibility of MTCT.
- The establishment of guidelines for health workers and trained counsellors in every facility for

the counselling of HIV-positive pregnant women about reducing the chances of MTCT through infant feeding options. It should be kept in mind that the mothers' rights are always upheld and they are supported on the choices they make in all aspects of HIV positive women's own health and that of their babies.

- Provide the highest attainable level of care to HIV infected women, including, at least, basic opportunistic infection management, both for their own health and well-being and for the optimal health of their infants.
- Take steps for HIV-negative women and women of unknown status to make sure that successful breastfeeding practices are promoted and supported to decrease infant and child morbidity and mortality.

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