

# Barriers to Prevention of HIV Transmission from Mother to Child (PMTCT) in a Resource poor Setting in the Eastern Cape, South Africa

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## ABSTRACT

The aim of this study was to investigate knowledge of PMTCT and to describe potential barriers that might affect acceptability of interventions for PMTCT in a resource poor setting in South Africa. The sample included 1534 pregnant women recruited at first antenatal care visit from 5 clinics implementing PMTCT (91%) and from 5 communities around the 5 clinic areas (9%). In addition, the mothers or mothers-in-law (70.9%) and husbands or partners (58.2%) of the pregnant women were interviewed at their homes. Results indicate that major potential barriers in implementing PMTCT programmes in a resource poor setting included physical access to the health facility; PMTCT knowledge, stigma and support, HIV testing, and delivery preference. (*Rev Afr Santé Répond* 2007; 11[1]:57-66)

## RÉSUMÉ

Obstacles à la prévention de la transmission du VIH de la mère à l'enfant (PTME) dans un milieu qui ne dispose pas de ressources nécessaires dans la région d'Eastern Cape, Afrique du Sud Cette étude avait pour objectif d'examiner la PTME et de décrire des obstacles potentiels qui pourraient affecter l'acceptabilité des interventions en faveur de la PTME dans un milieu qui ne dispose pas de ressources nécessaires en Afrique du Sud. L'échantillon a compris 1534 femmes enceintes qui ont été recrutées au cours de leur première visite anténatale auprès de 5 cliniques qui mettent en pratique la PTME (61 %) et auprès de 5 communautés dans l'environnement des 5 cliniques (39 %). En plus, les mères ou les belles-mères (70,9 %) et les maris ou les partenaires (58,2 %) des femmes enceintes ont été interviewés à la maison. Les résultats montrent que les obstacles potentiels majeurs à la réalisation des programmes de la PTME dans un milieu qui ne dispose pas de ressources comprennent l'accès physique à l'établissement de santé, la connaissance de la PTME, la stigmatisation et le soutien, l'éprouve du VIH et la préférence de l'accouchement. (*Rev Afr Santé Répond* 2007; 11[1]:57-66)

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**KEY WORDS:** *Access to health facility, barriers, mother to child transmission, resource poor setting, South Africa*

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## Introduction

The package PMTCT for the pilot programme in South Africa included offering all antenatal clients voluntary counselling and rapid HIV testing, infant feeding counselling, single dose nevirapine to those women identified as HIV infected, and their infants, and free formula milk for a period of 6 months for women choosing not to breastfeed. The programme also stipulated that all infants should be followed up and tested for HIV, with a rapid antibody test, at 12 months. In all provinces, except KwaZulu-Natal, counselling and testing was designed as an 'opt in' model whereby individual counselling and testing was offered to all women and undertaken after individual consent. The national policy to test infants at 12 months was made due to fears that waiting until 18 months for the first test would result in a large loss to follow up. Infants that test HIV positive at 12 months or are still being breastfed should be brought back to the clinic for a repeat test at 18 months. The rapid antibody test was chosen due to the high cost of PCR tests and limited laboratory infrastructure at the time the programme was introduced.<sup>1</sup>

Doherty, McCoy and Donohue<sup>2</sup> evaluated a total of 18 PMTCT pilot sites, 2 in each of the 9 provinces, and found that from overall, 39735 (85%) of women who tested received their test results and 14340 (30%) of the women who tested had HIV positive test results, of whom 7653 (55%) were dispensed nevirapine. The rate of uptake of nevirapine did not differ dramatically across sites and was generally sub-optimal. At discharge, 58% (4196/7237) of HIV positive women expressed an intention to practice exclusive formula feeding and 42% (3041/7237) of HIV positive women intended to practice exclusive breastfeeding. The predominant choice of infant feeding across both locations (rural and urban) was formula milk. Of concern was the higher rate of intention to formula feed in rural sites (67%) compared with urban sites (57%). Very

little information is known about the actual infant feeding practices of HIV positive women due to the poor follow up rates under these routine programme conditions. Various other studies have identified potential barriers in the implementation of PMTCT in routine care settings in Africa (e.g.<sup>3</sup>).

The aim of this study was to investigate knowledge of PMTCT and to describe potential barriers that might affect acceptability of interventions for PMTCT in a resource poor rural setting in South Africa.

## METHOD

### *Design and setting*

A cross-sectional survey was carried out among pregnant women in five clinics offering PMTCT and five surrounding communities in a rural district in the Eastern Cape Province. PMTCT included according to the national protocol: health education on antiretroviral prophylaxis and infant feeding options for pregnant women, voluntary counselling and testing, rapid onsite HIV testing, supply of a nevirapine pack, free formula provision, and PMTCT integrated into antenatal care.<sup>5</sup>

### *Sample and procedure*

From 1<sup>st</sup> October 2003 to 30 April 2004, 1534 pregnant women were recruited at first antenatal care visit from 5 clinics implementing PMTCT (61%) and from 5 communities around the 5 clinic areas (39%) in region F<sub>2</sub>, Eastern Cape. In addition, the mothers or mothers-in-law (70.9%) and husbands or partners (58.2%) of the pregnant women were interviewed at their homes (see Table 1).

The study was approved by the Rhodes University Ethics Committee. The researcher obtained informed consent from each woman willing to participate in the research.

Interviews were conducted in isiXhosa by trained professional nurses.

Table 1: Recruitment

	F	%
Pregnant women	1534	100
Recruited from clinic at first antenatal care visit	936	61.0
Recruited from community prior to antenatal care visit	598	39.0
Mother (mother-in-laws)	754 (333)=1087	49.2 (21.7)=70.9
Huband (partner)	361 (533)=894	23.5 (34.7)=58.2

### Measures

An existing questionnaire<sup>5</sup>, containing both closed and open-ended questions, was used. It provided for the following categories of data: demographic and socioeconomic data (9 items), availability of water, transport and communication (8 items), exposure to PMTCT components and HIV knowledge (14 items), stigma and family/community support for pregnancy (14 items), delivery options (3 items), and feeding options (4 items). The questionnaire had been developed and piloted in an earlier study on PMTCT in Gauteng Province.<sup>6</sup> In addition, PMTCT monitoring data were collected from the hospital coordinating the five PMTCT sites.

### Data analysis

For the closed-ended questions descriptive statistics were calculated using SPSS version 12. For the open-ended questions a thematic analysis was used to analyse and interpret the data.

## RESULTS

Results are divided into (1) sample characteristics, (2) access to health facility, (3) PMTCT knowledge, (4) stigma and support, (5) Voluntary Counselling and Testing (VCT), (6) delivery preference, and (7) infant feeding options.

### (1) Sample characteristics

Almost all of the pregnant women were Xhosa by ethnicity (96.9%). The mean age of pregnant women was 25.3 years (SD=7.4 years), with a range of 16 to 53 years and 20.9% 18 years and younger. Two-thirds of pregnant women (60%)

were never married and one-third (36.6%) were married or co-habiting. Almost half lived with their parents (49%) and a quarter (24.2%) lived with their husband or partner. The mean number of years of formal education was 6.0 years (SD=3.0 years) among the pregnant women. This was higher than among their mothers or in-laws (4.4 years) but lower than among their husbands or partners (7.5 years). Three-quarters (71.8%) lived in a traditional African hut while one-quarter (27.4%) lived in a brick house. Only a few of the women (16.9%) were formally employed (see Table 2).

### (2) Access to health facility

The most common means of transport to get to a hospital or clinic was walking (56%), followed by bus (42%) and taxi (41%). The time to get to the nearest clinic was for almost one-third (30.4%) more than one hour and the time to get to the nearest hospital was for the majority (61.8%) more than one hour. Only a quarter of the women had access to a telephone (see Table 3).

On an open-ended question participants were asked about "What assistance can be given to you to attend antenatal clinic?" Most (982, 66.3%) indicated that they wanted money for the bus fare and some wanted better ambulatory services for delivery (273, 18.4%) and transport availability of taxis and buses (210, 14.2%).

### (3) PMTCT Knowledge

In this study most pregnant women, mothers/in-laws and husbands/partners had relevant HIV knowledge but only one-third were aware of PMTCT (see Table 4).



Table 3: Access to transport and communication

Mode of transport to get to hospital/clinic	f	%
Walk	877	55.9
Bus	658	42.0
Taxi	648	41.3
Own car	3	0.2
Hired car	15	1.0
Hitch-hiking	73	4.7
Car	15	1.0

*Time to get to nearest clinic*

30 minutes and less	367	23.9
> 30 minutes to 1 hour	632	40.7
> 1 hour to 1 ½ hours	194	12.6
> 1 ½ hours	273	17.8

*Time to get to nearest hospital*

30 minutes and less	156	10.1
> 30 minutes to 1 hour	370	24.1
> 1 hour to 1½ hours	295	19.2
> 1 ½ hours	653	42.6

*Cost of one-way trip to nearest clinic*

< R 5.00	339	22.1
> R 5.00 to R 10.00	589	38.2
> R 10.00	395	25.7

*Access to telephone*

Own phone	362	24.8
Other private phone	64	4.2
Public phone	38	2.4
	91	5.9

*If not access at night*

and ARVs are the most important needs of persons living with HIV/AIDS (see Table 6). Insert Table 6 about here

### (5) Voluntary Counselling and Testing (VCT)

Most pregnant women (92.4%) and their husbands or partners (84%) in this sample indicated that they never have had an HIV test (92.4%). Major barriers of pregnant women for not having had an HIV test were fear of being HIV positive, not aware where to get tested and lack of confidentiality of test results. Having been provided with HIV/AIDS information, waiting

to know their HIV status and concern for the transmission of HIV from mother to the unborn child were given as major factors that would encourage them to go for an HIV test. Most mothers or mothers-in-law (83.4, 98.9%) and husbands or partners (76.7, 95.3%) would encourage their daughter or wife respectively to go for an HIV test (see Table 7). Insert Table 7 about here

### (6) Delivery preference

Most pregnant women (95.5%), their mothers or mothers-in-law (95.5%) and husbands or partners (96.2%) in this study indicated that they wish a delivery in a health facility. However, from those

Table 4: HIV knowledge in correct answers and PMTCT awareness

	Pregnant women in-laws	Mothers/ partners	Husbands/
Can a pregnant woman infected with HIV/AIDS transmit the virus to her unborn?	1181 (78.5%)	759 (71.7)	611 (73.1)
Can a woman with HIV/AIDS transmit the virus to her unborn child through breastfeeding?	1331 (88.3)	765 (72.2)	569 (69.1)
<i>What can pregnant women do to reduce the risk of transmitting of HIV to her unborn?</i>			
Take antiretrovirals	1230 (82.4)	807 (76.9)	598 (70.9)
Exclusive breast feeding/formula	8 (0.5)	49 (4.7)	52 (6.2)
Aware of PMVCT	528 (35.0)	423 (40.3)	309 (37.3)

Table 5: How are people living with HIV/AIDS treated in your community? (open-ended question)

	Pregnant woman	Mother/in-law	Husband/partner
They are stigmatized	315 (21.2)	256 (24.6)	258 (30.5)
Ignored/isolated	261 (17.6)	66 (6.3)	21 (2.5)
Get community support	693 (46.7)	552 (53.0)	421 (49.7)
Other	195 (13.1)	36 (3.5)	34 (4.0)
Don't know	20 (1.4)	131 (12.6)	111 (13.1)

Table 6: What are needs of persons living with HIV/AIDS (open-ended)

	Mother/in-law	Husband/partner
Emotional support, love and hope for future	472 (44.7)	334 (39.9)
Good diet	227 (21.5)	240 (28.6)
ARV's	84 (8.0)	65 (7.7)
Money	44 (4.2)	17 (2.0)
Other	100 (9.5)	60 (7.1)
Don't know	128 (12.1)	123 (14.7)

pregnant women who had delivered before 41.9% had delivered their last baby at home (see Table 8).

### (7) Infant feeding options

Almost half of the pregnant women (46.3%) indicated that they intended to do exclusive breast feeding and 37% replacement feeding, while most mothers or mothers-in-law and husbands or partners said that the feeding methods used with the last born was mostly either exclusive breast feeding or mixed feeding (see Table 9).

Most participants (76.1%) indicated that they get drinking water from a river and one-third (34.7%) from a water hole, which would increase the difficulty of formula feeding (see Table 10). Insert Table 10 about here

### Discussion

As many countries in Africa roll out programmes for the prevention of mother to child transmission of HIV, there is a need to consider potential barriers that these programmes may face in

Table 7. HIV testing and HIV testing attitudes

	Pregnant women		Husbands/ Partners	
	F	%	F	%
Did you ever have an HIV test	114	7.6	133	16.0
Did you find out the results?	74	4.7	75	4.9
<i>If not tested, what are the reasons for not having been tested for HIV?</i>				
Did not know where to get tested	320	20.8		
It's unlikely that I have been exposed to HIV	48	3.2		
Was afraid to find out if I was HIV positive	568	37.0		
Do not like needles	69	4.5		
Afraid of losing position, insurance, housing, friends, family, if people knew I was HIV positive	10	0.7		
Lack of transport	38	2.5		
Did not trust results to be confidential	131	8.5		
Others, specify:	95	6.2		
<i>If that will encourage you to go for test HIV test (yes-ended)</i>				
Having been provided with HIV/AIDS information	566	38.8		
I want to know my status	394	27.0		
Concerned how to prevent transmission from mother to unborn child	202	13.8		
Don't want to know my status	70	4.8		
Want to be sure the results will be confidential	39	2.7		
To know when I become sick	25	1.7		
If antiretroviral treatment is available	14	1.0		
Other	149	10.2		

#not asked for husbands/partners

resource poor settings. This study has shown major potential barriers in implementing PMTCT programs in a resource poor setting including pregnant women from health facilities and from the community in rural South Africa. Barriers to PMTCT (the acceptance of antiretroviral prophylaxis to HIV positive women, facility-based delivery where improved obstetric practices can be used, and ART for mother and newborn can be supervised, and adherence to "take-home" ART for mother and newborn when given to HIV positive women at ANO), can be attributed to factors such as physical access to the health facility; PMTCT knowledge, stigma and support; VCT, and delivery preference.

Access to health facilities is a problem, especially as regards transport during emergencies. With a geographically dispersed community it is

generally difficult to get to the clinics even during the day. About one-third of the sample spends more than one hour to get to the nearest clinic. There is very little public transport, and emergency transport is difficult to contact. Considering that many pregnant women only attend antenatal care once (to get the card so that they can deliver in a health facility), money for bus fare could be provided.

The knowledge of HIV transmission from mother to child was relatively high. However, only one-third were aware of PMTCT. Community and clinic health education should be improved including PMTCT education.

More than one-third of the participants felt that PLWHAs are stigmatized in their community. Mothers/in-laws and husbands/partners of the pregnant women interviewed indicated in an

Table 8: Delivery and delivery preferences in frequency (and percent)

Item	Pregnant woman	Mother/mother-in-law	Husband/partner
<i>Where do you prefer to give birth?</i>			
Hospital	1436 (94.5)		
Clinic	19 (1.2)		
Home	48 (4.5)		
If birth at home, would you call a TBA to assist?	1320 (88.4)		
	<i>If/when, if so, did you deliver your last baby (n=995)?</i>	<i>If/when was your last born delivered?</i>	
Hospital	548 (57.4)	444 (41.7)	295 (63.2)
Clinic	7 (0.7)	8 (0.8)	3 (0.6)
Home without TBA	246 (25.8)	411 (38.6)	109 (23.3)
Home with TBA	145 (16.1)	204 (18.9)	60 (12.8)
	<i>If/when do you want your daughter to deliver this baby?</i>	<i>If/when do you want your wife or partner to deliver this baby?</i>	
Hospital	973 (95.5)	787 (96.2)	
Clinic	19 (4.9)	12 (1.5)	
Home	37 (2.6)	19 (2.3)	

Table 9: Feeding options in frequency (and percent)

Item	Pregnant woman	Mother/mother-in-law	Husband/Partner
	<i>Feeding methods to be used</i>	<i>Feeding methods with last born</i>	<i>Feeding methods with last born</i>
Breast feeding exclusively	709 (46.3)	519 (34.5)	189 (21.1)
Replacement feeding (formula or other milks) exclusively	567 (37.1)	172 (11.2)	135 (15.1)
Breast feeding mixed with water, tea, porridge, rice, formula or animal milks	475 (31.0)	439 (28.6)	171 (19.1)
Can't boil drinking water if were to do formula feeding	1496 (99.2)		

Table 10: Source of drinking water

	Where do you get drinking water?	
	f	%
Tap	188	12.3
Pond	20	1.3
River	1699	76.1
Water hole	535	34.7
Water cask	32	2.1



open-ended question that emotional support, love and hope for the future, followed by 'good diet and ARVs are the most important needs of persons living with HIV/AIDS. In a similar study of pregnant women within the PMTCT programme in Gauteng, Dorkenoo *et al.*<sup>6</sup> also found that stigma persists at the family and at community level. Women indicated that their partners and other family members did not support them emotionally. Community education and awareness campaigns on PMTCT are essential components for the success of the programme. Such education should reinforce male involvement and other family members, particularly mothers-in-law who have influence over the options open to women who are HIV positive.

Monitoring data in the PMTCT project sites show that from the total number of antenatal care first bookers, two-thirds underwent MICT pre-test counselling and half accepted HIV testing (of which 60-90% received the results). Interview data from this study identified as major barriers of pregnant women for not having had an HIV test were fear of being HIV positive, not aware where to get tested and lack of confidentiality of test results. Having been provided with HIV/AIDS information, wanting to know their HIV status and concern for the transmission of HIV from mother to the unborn child were given as major factors that would encourage them to go for an HIV test. Also most mothers or mothers-in-law and husbands or partners indicated that they would encourage their daughter or wife respectively to go for an HIV test. In many PMTCT programmes where VCT is available, low community acceptance and use of VCT services is a major barrier to identifying, counselling and treating HIV+ pregnant women and their partners. In combined data from 9 countries in Africa, 43% of ANC attenders accepted VCT.<sup>7</sup> Increasing acceptance of VCT may be one of the most effective ways to decrease perinatal transmission. Many factors have been shown to influence the "demand side" of the decision to seek and accept VCT as part of

PMTCT programmes, including fear of stigma, fear of more rapid death once knowing one's HIV status, and unwillingness to participate in an intervention to prevent the baby from getting HIV if no maternal treatment is available. Addressing both supply and demand factors of VCT is essential. Several interventions have been developed to improve the "supply side" of VCT, including manuals to guide VCT counsellors and the development of detailed standards for certification and accreditation of VCT sites. Mechanisms to improve and standardize the content and quality of VCT, the cornerstone of most PMTCT programmes, have been developed and tested.<sup>8</sup> Doherty *et al.*<sup>1</sup> found in South Africa that Provinces with low HIV testing uptake such as the North West (14%) and the Eastern Cape (34%) are still struggling to employ lay counsellors. Routine offer of HIV testing with the right to opt out is now tested in the antenatal setting in several African countries such as in Botswana. This 'opt out' approach to HIV testing has substantially increased the uptake of testing in ANC settings.<sup>9</sup>

A significant proportion of mothers deliver outside the health facility. Health facility-based delivery is helpful to ensure compliance to infant antiretroviral dosing and to ensure the practice of modified obstetric practices that have been shown to reduce MICT.<sup>10</sup> O'Mahony and Steinberg<sup>11</sup> conducted a survey of two hundred women on place of delivery, home delivery practices and antenatal care for the most recent delivery (within the previous 5 years) from randomly selected clusters, obtained from a multistage random sampling process, in rural Transkei, now Eastern Cape. Two-thirds had delivered at home and one-third within the health services. Of those who delivered at home, 62 (47%) were alone at the time of delivery while the remainder were assisted by a close relative or neighbour; 38% had one or more risk factors for obstetric complications.

Use of skilled professional childbirth attendants by all women remains a goal of safe

motherhood programmes, despite well-known barriers. Increasing use of skilled professional childbirth attendants, facility-based when PMTCT programmes. This would allow timely, supervised receipt of ARVs during the intrapartum period, while at the same time allowing opportunity for quality routine childbirth care, and improved obstetric practice administered by skilled providers. However, partly due to the magnitude of MTCT and the urgency of increasing coverage of PMTCT interventions, and taking into account the childbirth realities in much of rural Africa, many programmes have begun to focus efforts on improving obstetric practices among traditional birth attendants (TBAs) during home-based childbirth. Challenging global consensus on the diminishing need for and role of TBAs, some PMTCT programmes have placed TBAs at the center of efforts to reduce PMTCT in the community. For the most part, this includes reinforcing quality home-based maternity care by TBAs and other family birth attendants and avoidance of home birth practices that could increase MTCT.<sup>8</sup>

One limitation of this study was that mothers were questioned on infant feeding options but were not followed to determine those who eventually chose a specific feeding option. Actual feeding practice would have been more informative than answers to the question on infant feeding intentions. In addition, the rural PMTCT sites were purposefully chosen. Since they were not randomly selected, it is possible that these clinics may not be representative of other resource settings in South Africa.

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### REFERENCES

1. Doherty T, Besser M, Donohue S, Kamoga N, Stoops N, Williamson L & Vissser R. An evaluation of the Prevention of Mother-to-child Transmi-

ssion (PMTCT) of HIV initiative in South Africa: lessons and key recommendations. Durban: Health Systems Trust, 2003.

2. Doherty TM, McCoy D & Donohue S. Health system constraints to optimal coverage of the prevention of mother-to-child HIV transmission programme in South Africa: lessons from the implementation of the national pilot programme. *Afr Health Sci* 2005; 5(3): 213-218.
3. Bajunirwe F and Muzoora M. Barriers to the implementation of programs for the prevention of mother-to-child transmission of HIV: a cross-sectional survey in rural and urban Uganda. *AIDS Research and Therapy* 2005; <http://aidsreshtar.com/content/2/1/10>.
4. Karanamagi CA, Turwine JK, Tyllekar T & Heggenhagen KH. Antenatal HIV testing in rural eastern Uganda in 2003: incomplete rollout of the prevention of mother-to-child transmission of HIV programme. *BMC International Health and Human Rights* 2006; 6: 6.
5. Pelzer K, Mosala T, Dorkenoo F & Gunwede T. Health facility baseline report on Preventing Mother-To-Child Transmission (PMTCT) in a district of the Eastern Cape. Johannesburg: Ford Foundation, 2003.
6. Dorkenoo E, Gunwede T, Mahleke K & Shaikh N. Prevention of mother-to-child transmission: a report of an assessment of a pilot programme in 15 health facilities in Gqeberha Province. Cape Town: Human Sciences Research Council, 2003.
7. Buhlers, M, Nolan, D, Jamison, K, Dominguez, MG (2002) Advances in the prevention of mother-to-child HIV transmission: current issues, future challenges. *AIDS Awareness*, 2(4), February 28, 2002.
8. Moore M. A behavior change perspective on integrating PMTCT and safe motherhood programs: a discussion paper. Washington, DC: The Change Project AED/The Masoff Group, 2003.
9. Nieburg P, Cannell T, Morrisson J. Expanded HIV testing: critical gateway to HIV treatment and prevention requires major resources, effective protections. Washington DC: Center for Strategic and International Studies, 2005.
10. Burke J. Infant HIV infection: acceptability of preventive strategies in central Tanzania. *AIDS Educ Prev* 2001