

Follow-up survey of women who have undergone PMTCT in a resource poor setting

Karl Peltzer, Thabang Mosala, Pelisa Dana, Nolwandle Mngqundaniso and Ayanda Nqueko Nyekeko

Introduction

The package PMTCT for the pilot programme in South Africa included offering all antenatal clients voluntary counseling 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. In KwaZulu-Natal, which achieved an HIV test acceptance rate of nearly double the national average, counselling was considered a routine part of antenatal care and all women received individual counselling and were then offered an HIV test which they could "opt out" of if so desired. This approach is likely to have contributed to the extremely high rate of testing. The rate of uptake of nevirapine 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.

Doherty, McCoy and Donohue (2005) evaluated a total of 18 PMTCT pilot sites, 2 in each of the 9 provinces, and found regarding HIV testing, infant feeding and infant follow-up:

-HIV testing:

Overall 39733 (85%) of women who tested received their test results and 14340 (30%) of the women who tested had HIV positive test results, of whom 7853 (55%) were dispensed nevirapine. The rate of uptake of nevirapine did not differ dramatically across sites and was generally sub-optimal. The evaluation found several reasons for the low recorded nevirapine coverage. Most importantly under-estimation of the coverage could occur if a woman chose not to disclose her HIV status to labour ward staff, yet self-administered her nevirapine dose.

-Infant feeding:

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) is formula milk. Of concern is 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.

Several operational problems with the distribution of free formula milk were noted during site visits. In almost all of the sites there were reports of formula supplies running out and difficulties with the procurement of supplies due to national tenders with the manufacturing company. Furthermore, health workers reported that many mothers returned to the facilities to fetch more supplies before their scheduled return dates. There were suspicions amongst health workers that women were selling the tins and in some sites this led to them decreasing the number of tins given to women at each visit as a disincentive for them to sell the tins. This resulted in women having to collect tins fortnightly instead of monthly.

-Infant follow-up:

Infant follow up varied across provinces from 10% to 78%. Of the infants who were tested, 170 (18%) tested HIV positive. Given the small number of infants tested and the testing method utilized (rapid antibody test at 12 months in a predominantly breastfeeding population) this figure cannot be considered an accurate reflection of the vertical transmission rate.

The aim of this study was to investigate PMTCT exposure to PMTCT interventions, Knowledge of HIV transmission, antenatal care, HIV counselling and testing, antiretroviral treatment, delivery, infant feeding, family planning, life events, referral for care and support in a cohort sample who had undergone PMTCT in a resource poor setting.

Methods

Study setting

The package of care in the five study sites in Quakeni district in the Eastern Cape 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 12 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.

When women arrived for their first appointment at the clinic, they received HIV counselling in a group, were told about the MTCT programme, and were asked if they would like to receive an HIV test. Those who opted for HIV testing also received individual HIV counselling with a trained HIV counsellor, during which time there was another opportunity to decline testing. Test results were reported to the women individually in post-test counselling sessions at subsequent visits. Women

who tested HIV positive were invited to participate in the MTCT programme. At the time of the study, they were provided with a nevirapine pack to take home to administer during labour, were discouraged from breastfeeding, and were given a 6-month (and later 12 months) supply of free infant formula. Infants were followed at the primary care clinics and tested for HIV at 9 and 18 months. They were given antibiotic prophylaxis and treatment for opportunistic infections.

Study design

A cohort sample of pregnant women were recruited from primary health care clinics (with PMTCT) and from the community. In addition, mothers or mothers-in-law and husbands or partners of the pregnant women were recruited into the study. The study was conducted in region E, Qaukeni District, in the Eastern Cape. The communities in region E are rated among the most economically disadvantaged and with relatively poor access to services, with less than 50% having access to basic water supply and basic sanitation. The area is also lagging behind in economic development. It has the highest unemployment rate in the country (48.5%). Most employed men work as migrants in Gauteng, Western Cape and KwaZulu-Natal. The poverty rate (percentage of population in poverty) was estimated at 63.3%, the second highest in the country. The Human Development Index for the Eastern Cape was 0.51 in 1999. This is far lower than the rest of South Africa, with the exception of the Limpopo Province. The predominant housing type is a traditional mud-and-stick hut, with people living in dispersed homesteads. It has a population density of 39 persons per square kilometre, far below that of Gauteng (385) and KwaZulu-Natal (100) (Mahlalela, Rohde, Meidany, Hutchinson & Bennett 2001:3-5; RSA National Treasury 2001:2-3). Maternal health services in the study area are rendered by two hospitals (Holy Cross and St. Elizabeth), five fixed clinics and a few mobile clinics.

Sample and procedure

From 1st October 2003 to 30 April 2004, 1534 pregnant women were recruited at first antenatal care visit from five clinics implementing PMTCT (61%) and from five communities around the five clinic areas (39%) in region E, Eastern Cape. In addition, the mothers or mothers-in-law (70.9%) and husbands or partners (58.2%) of the pregnant women were interviewed in their homes. Recruitment of pregnant women in the clinics was done by retired nurses (one per clinic) and recruitment of pregnant women in the community and follow-up of their relatives was done by volunteer community workers (trained in PMTCT community mobilization) from the respective five communities. Both retired nurses and volunteer community workers were trained by the research team in interview-administration of the questionnaire. The recruitment of pregnant women in the community utilized a community mobilization of PMTCT approach. Volunteer community workers held PMTCT awareness meetings in public places and recruited pregnant women (inclusion criteria of not having attended antenatal care with the current pregnant woman). The following follow-up visits consisted of a postnatal interview (n=1310) with infants aged 3 months and less (n=141, 10.8%), 4-6 months (n=200, 15.3%), 7-12 months (n=785, 59.9%), and 13-18 months (n=183, 14.0%), and checking the

clinic records for the same patient at five PMTCT clinic sites. Checking the clinic records (n=1140) among others collected the HIV status of the mother and the baby.

The HIV status was established from self-report from the postnatal interview with the mothers and cross-checked with their corresponding clinic records. If the clinic record showed a HIV positive or negative status this result was taken, if the clinic record HIV status was not available the self-reported HIV positive or negative status was taken. Interviews were conducted in IsiXhosa and were carried out from September 2004 to July 2005 for the prenatal study and from June 2005 to January 2006 for the postnatal study.

The study was approved by the Rhodes University Ethics Committee. The field workers (retired nurses and volunteer community workers from the study communities) obtained informed consent (by explaining the purpose of the study and obtaining a signature) from each pregnant woman willing to participate in the research. Further permission was obtained from the pregnant woman to conduct a home visit for an interview with her mother or mother-in-law and husband or partner; from whom informed consent was obtained likewise. In addition, permission was sought to conduct an interview with her postnatally at the clinic or at her home. Anonymity and confidentiality of these women were assured. No names and contact details appeared on the questionnaires, codes and identifying information were kept in a separate locked up place. Participants were interviewed in IsiXhosa (the major language in the target area) with a semi structured questionnaire by trained field workers. The questionnaire had been translated from English into IsiXhosa. The translation was checked by two external bilingual experts.

Measures

A questionnaire for the postnatal survey was developed from the literature (Amooti-Kaguna & Nawaha 2000; Peltzer et al. 2005, Rutenberg et al. 2003, UNICEF 2001) including the following sections containing both closed and open-ended questions for: socio-demographic characteristics, exposure to PMTCT interventions, Knowledge of HIV transmission, antenatal care, HIV counselling and testing, antiretroviral treatment, delivery, infant feeding, family planning, life events, referral for care and support.

Results

HIV status of mother

From all women who could be followed-up, 116 were found HIV positive, 642 HIV negative and 552 with unknown HIV status. Considering those with an HIV test result, 15.3% were found to be HIV positive (see Table 1).

Table 1: HIV status of mother

		n	%	n	%
Valid	HIV positive	116	8.9	116	15.3
	HIV negative	642	49.0	642	84.7
	Unknown	552	42.1		
Total		1310	100.0	758	100.0

Women with lower formal education were significantly more frequently HIV positive. The age, number of live children and marital status did not differ with regard to HIV status (see Table 2).

Table 2: Sociodemographic characteristics by HIV status of mother

	Age in years	Formal education	Number of live children	Single	Having a partner
	M (SD)	M (SD)	M (SD)	%	%
1. HIV +	26.2 (6.7)	6.0 (3.0) ^{2,3}	2.5 (1.8)	60	97
2. HIV -	26.4 (6.9)	6.9 (2.8)	2.5 (1.8)	59	99
3. Unknown status	26.5 (7.0)	6.8 (2.9)	2.4 (1.9)	61	99

*significant lower education

PMTCT and HIV knowledge

Participants were knowledgeable about HIV transmission from mother to child. However, a high proportion (36.7%) incorrectly believed that if a woman was infected transmission of the virus to her child would “always” occur (see Table 3).

Table 3: PMTCT awareness and HIV knowledge (in correct responses)

	HIV +	HIV -	Unknown status
	N (%)	N (%)	N (%)
A health care worker in a clinic or hospital talked to you about PMTCT	115 (99.1)	634 (98.8)	544 (98.9)
Pregnant women who are HIV positive transmit HIV to their babies (sometimes)	59 (50.9)	363 (56.7)	346 (62.8)
Can an HIV positive mother infect her baby with HIV during pregnancy?	103 (88.8)	459 (71.7)	463 (84.2)
Can an HIV positive mother infect her baby with HIV during delivery?	110 (94.8)	623 (97.2)	518 (94.0)
Can an HIV positive mother infect her baby with HIV during breastfeeding?	111 (95.7)	591 (92.5)	538 (98.4)

Women who had actually taken the drug had a significantly higher HIV transmission knowledge score ($M=3.4$, $SD=0.5$, range 1-4) as compared to women who had not taken the drug ($M=3.0$, $SD=.05$) ($F=4.96$, $P<.05$).

HIV counselling and testing

When asked if they were provided with HIV information during pregnancy, 99.1% of the HIV positive women, 98.1% of the HIV negative women and 94.9% of women of unknown status responded yes. High percentages of HIV positive and HIV negative women went for both individual and group counseling (53.9% and 61.4% respectively) while a low percentage of women of unknown status (13.3%) went for both sessions (Table 6). A high percentage of women of unknown status responded they had attended group counseling (74.1%) while 25.2% and 26.4% of HIV positive and HIV negative women responded they attended group counselling sessions respectively. High percentages of HIV positive women (99.1%), HIV negative women (98.1%) and those of unknown status (95.0%) responded they were provided with information about taking the HIV test. When asked if they were provided the information individually, as a group or both, for the HIV positive and HIV negative women, the highest percentages received the information both as individuals and in a group (50.4% and 63.5% respectively) while a high percentage of women of unknown status received the information individually (70.7%). When asked if the women asked the health care provider any questions, 46.6% of the HIV positive women, 33.9% of HIV negative women and 28.4% of women of unknown status responded yes.

Table 4: HIV counselling and testing

	HIV +	HIV -	Unknown status
Provided with HIV information during pregnancy.	115 (99.1)	628 (98.1)	516 (94.9)
...in a group	29 (25.2)	166 (26.4)	389 (74.1)
...individually	24 (20.9)	77 (12.2)	66 (12.6)
...both	62 (53.9)	386 (61.4)	70 (13.3)
Provided with information about taking an HIV test	115 (99.1)	627 (98.1)	516 (95.0)
...in a group	18 (15.7)	129 (20.5)	371 (70.7)
...individually	39 (33.9)	101 (16.0)	70 (13.3)
...both	58 (50.4)	400 (63.5)	84 (16.0)
Asked health care provider any questions	54 (46.6)	217 (33.9)	152 (28.4)

The mode of HIV counselling (group, individual, both group and individual) seemed to have a significant influence on HIV status knowledge of the women. If women had received both group and individual HIV counselling they were significantly more frequently getting HIV tested and knowing their HIV status, as compared to women who had received either group or individual HIV counseling only ($\chi^2=319.34$, $p<.001$) (see Table 5).

Table 5: HIV counselling mode and HIV status knowledge

HIV status	Information on HIV received in a group or individually?			Total
	Group	Individually	Both	
Unknown HIV status	389	66	70	525
	74.1%	12.6%	13.3%	100.0%
HIV positive or negative	195	101	448	744
	26.2%	13.6%	60.2%	100.0%

Disclosure of HIV testing

High percentages of both HIV positive and HIV negative women had shared their test results with somebody else, with the highest disclosure with mothers and partners (Table 6).

Table 6: Disclosure of HIV testing

	HIV +	HIV -
Shared HIV results with someone	69 (77.5)	384 (78.0)
...with partner	60 (98.4)	356 (98.6)
...with mother	24 (100)	113 (96.6)
...with sister	19 (95.0)	45 (93.8)
...with friends	2 (66.7)	16 (84.2)

ARV treatment

Only 66 (57%) of the HIV positive pregnant women had been provided with Nevirapin, 65.2% of them told their partners about the drug, 85.7% took the drug, with the highest percentage taking the drug at the onset of labour (82.1%). There was no significant difference in taking Nevirapin (for the mother and the infant) between home and health facility delivery (see Table 7).

Table 7: ARV treatment

HIV positive women	Yes	No
	N (%)	N (%)
Provided with Nevirapin	66 (56.9)	50 (43.1)
Told partner about drug	43 (65.2)	23 (34.8)
Did you take the drug	54 (85.7)	9 (14.3) (reasons: "did not want to", "forgot to", "lost it")
When did you take the drug:		
-Before labour began	9 (16.9)	
-Onset of labour	46 (82.1)	
-Another time	1 (1.8)	
Took drug by type of delivery:*		
-Home-based	29 (53.7)	5 (55.6)
-Health facility	25 (46.3)	4 (44.4)
Did the baby receive syrup medicine within 3 days after s/he was born	58 (89.2)	7 (10.8) (main reason: did not take baby to hospital)
Baby received syrup by type of delivery:		
-Home-based	28 (48.3)	5 (71.4)
-Health facility	30 (51.7)	2 (28.6)

*no significant difference ($\chi^2=0.011$, ns), ** no significant difference ($\chi^2=1.34$, ns)

Safe Delivery

Almost half (43.4%) of the women indicated that they had delivered their baby in a home-based setting; 189 (43.5%) were assisted by a relative or friend, 187 (42.1%) by a traditional birth attendant and 58 (13.3%) by no one. HIV positive women delivered their baby more often in a home-based setting than in a health facility, while HIV negative women (and those women with unknown HIV status) more frequently delivered in a health facility than at home (Table 8).

Table 8: Home-based and setting-based delivery

	Home-based N (%)	Setting based N (%)	χ^2
HIV +	62 (54.4)	52 (45.6)	8.12*
HIV -	282 (44.1)	357 (55.9)	
HIV status unknown	217 (40.1)	324 (59.9)	
Total	561 (43.4)	733 (56.6)	
Maternal age			17.48***
<30	330 (40.1)	492 (59.9)	
30+	202 (53.0)	179 (47.0)	

Participants indicated reasons for home and health facility delivery.

Major reasons for home delivery included in descending order of importance:

1. Because I wanted to be home to deliver
2. Because I know a TBA where I wanted to deliver
3. Spouse encourage me
4. Because staff at health facility is not friendly
5. Because of other family members
6. Because there was not time to get to the health facility

Major reasons for health facility delivery

1. Decided to delivery at health facility
2. Because better for me and the baby
3. Because everyone goes there
4. Because it has a good reputation
5. Because this is where I had my other children
6. Because this what one is supposed to do
7. Because it is friendly
8. Because health facility has a maternity ward
9. Because it is close to home

Male involvement

Few partners accompanied the pregnant women to ANC, with 14.9%, 15.3% and 5.3% of HIV positive, HIV negative and women of unknown status reporting being accompanied by their partners to ANC respectively. 45.0% of HIV positive women's partners saw a health worker together with the woman. 78.3% of HIV positive women can talk with partner about HIV, 60.3% of them are comfortable with discussing faithfulness with their partners and 75.0% have actually discussed faithfulness with their partners. HIV positive women were comfortable discussing condom use with partners to prevent pregnancy (54.3%) and STIs (44.7%). Having the partner accompanying the pregnant woman to antenatal care was significantly associated with getting an HIV test and knowing their HIV status of the woman ($\chi^2=30.53, P<.001$) (see Table 9).

Table 9: Male involvement

	HIV +	HIV -	Unknown status
Baby's father accompanied to ANC	17 (14.9)	96 (15.3)	28 (5.3)
Baby's father saw health worker with	9 (45.0)	32 (29.2)	15 (24.6)
Shared HIV test results with partner	60 (98.4)	356 (98.6)	0
Can talk with partner/husband about	90 (78.3)	577 (91.7)	465 (86.9)
How comfortable about discussing faithfulness with partner	70 (60.3)	445 (69.5)	459 (83.6)
Discussed faithfulness with partner	87 (75.0)	501 (78.3)	444 (81.3)
Comfortable about discussing condom use with partner to prevent pregnancy	63 (54.3)	347 (54.2)	416 (76.1)
Comfortable talking about condom use to partner to prevent STI	21 (44.7)	218 (58.9)	246 (79.9)
Told partner about drug (Nevirapine)	43 (65.2)		
Partner reaction about taking the drug was supportive	23 (59.0)		

Infant feeding

Infant feeding counselling takes place during antenatal care and involves offering HIV positive women the option of exclusive breastfeeding with early weaning at 4-6 months or free formula milk for a period of six months; in 2004 it was extended to 12 months in the Eastern Cape.

Most women (95%) received infant feeding counseling on the day of the interview or at an earlier clinic visit; HIV positive women 96%, HIV negative 95% and with unknown status 94%.

HIV positive mothers mostly formula fed (42%) their infants, followed by mixed feeding (34%) and exclusive breast feeding (24%). Mothers who were HIV negative and of unknown HIV status predominantly breastfed their infants (39% and 36% respectively), followed by mixed feeding (33% and 34% respectively) and surprisingly more than a quarter formula fed their infants (see Table 10).

Table 10: Infant feeding by HIV status (only a sub-sample of mothers with an infant of 6 months and less were included here)

Feeding in previous 24 hours	Age of infant	HIV + N (%)	HIV - N (%)	Unknown status N(%)
Breastfeeding (exclusive)	0-6 ms	14 (23.7)	148 (39.2)	103 (36.3)
Formula feed (exclusive)	0-6 ms	25 (42.3)	104 (27.5)	85 (29.9)
Mixed feeding	0-6 ms	20 (33.9)	126 (33.3)	96 (33.8)
Total		59 (100)	378 (100)	284 (100)

Family planning

Almost four in five women got counselling on safe sex during pregnancy but only two in three women practiced safe sex during pregnancy, which did not differ by HIV status. Postnatally, almost all women received counselling on family planning. Half of the women used condoms, one in three hormonal injections and one in five the pill. HIV positive women used more often condoms than HIV negative women. Otherwise postpartum family planning use is similar for HIV positive and HIV negative women. Intentions to use different major family planning methods were higher than the current practice (see Table 11).

Table 11: Family planning and HIV status

Family planning	Age of infant	HIV +	HIV -	Unknown status
Counsellor explained safe sex during pregnancy		87 (76.3)	507 (85.2)	383 (77.7)
Practiced safe sex during pregnancy		73 (65.8)	367 (62.3)	297 (54.5)
Health care provider discussed family planning	7-12 ms	53 (93.0)	378 (96.7)	301 (90.9)
	13-18 ms	20 (87.0)	70 (83.3)	63 (88.7)
Hormonal injections (currently)	7-12 ms	21 (36.2)	134 (34.2)	138 (41.4)
	13-18 ms	11 (50.0)	48 (57.1)	34 (46.6)
Hormonal injection (intention)		54 (47.0)	348 (54.3)	335 (61.1)
Condom (currently)	0-3 ms	4 (33.3)	30 (47.6)	21 (31.8)
	4-6 ms	13 (56.5)	56 (54.9)	25 (33.3)
	7-12 ms	32 (55.2)	173 (44.2)	72 (21.6)
	13-18 ms	9 (40.9)	60 (71.4)	39 (53.4)
Condom (intention to use)		85 (73.3)	426 (66.5)	274 (49.9)
Pill (currently)	7-12 ms	8 (13.8)	114 (29.1)	53 (15.9)
	13-18 ms	4 (18.2)	22 (26.2)	20 (27.4)
Pill (intention to use)		29 (25.0)	206 (32.1)	219 (40.0)

Two in five HIV positive women expressed the intention to have another child, while three in five did not intend to have another child. HIV positive women are significantly more likely than HIV negative women to say that they do not intend to have more children (see Table 12).

Table 12: Intention to have another child

	HIV +	HIV -	χ
Within 1 year	5 (4.3)	22 (3.4)	9.54*
Within 2-3 years	6 (5.2)	48 (7.5)	
After 3 years	34 (29.3)	270 (42.3)	
Not at all	71 (61.2)	298 (46.8)	

* $P < .05$

Referral and care

Most HIV positive women (87.9%) knew where to go for support and 65.0% were currently attending or receiving care and support; 85.3% of these women were aware of the availability of the drug treatment and 82.3% knew how to access it (see Table 13).

Table 13: Referral and care (HIV positive women)

	N (%)
Received information on where to get more support about HIV	102 (87.9)
Currently attending/receiving HIV care and support	67 (65.0)
Aware of availability of drug treatment for people with HIV/AIDS	99 (85.3)
Knows how to access HIV drugs	93 (82.3)

HIV status of infant

From 116 HIV positive mothers only 40 babies could be followed. Major reasons for the loss of follow-up include: the name of the infant's mother could not be traced in the infant's card (many women are single and the name of the father would appear on the card, etc.), the mother took the infant to a different clinic, etc.). From the 40 infants followed-up, 17 were HIV negative, 2 HIV positive, 2 had died and 16 had not been tested. Although numbers are small, HIV positive infants received less often Nevirapine than HIV negative infants.

Table 14: HIV status of infant

	N	Nevirapine taken by mother	Nevirapine given to infant	Breast feeding
Babies from 116 HIV positive mothers followed-	40	%	%	%
Babies HIV status				
-HIV positive	2	0	0	100
-Died	2	50	100	100
-HIV negative	17	53	90	55
-Not tested	16			
-Not followed-up	72			

Discussion

From all women who could be followed-up, 116 were found HIV positive, 642 HIV negative and 552 with unknown HIV status. Considering those with an HIV test result, 15.3% were found to be HIV positive. It would be important to increase the voluntary update of HIV testing.

Participants were knowledgeable about HIV transmission from mother to child. However, a high proportion (36.7%) incorrectly believed that if a woman was infected transmission of the virus to her child would “always” occur. This finding concurs with a study in the Western Cape (Ethiebet et al., 2004). This finding raises challenges for the training of counsellors. Women in this study who had reportedly actually taken the Nevirapin drug had a significantly higher HIV transmission knowledge score as compared to women who had not taken the drug. Therefore, ~~Most transmission knowledge for both improved HIV and HIV testing prenatally~~ but many (42%) did not get tested for HIV and their HIV status was unknown. However, if women had received both group and individual HIV counselling they were significantly more frequently getting HIV tested and knowing their HIV status, as compared to women who had received either group or individual HIV counseling only. The acceptability of antenatal VCT (though as part of routine clinic services) seemed low.

High HIV testing disclosures rates (78%) were found among both HIV positive and HIV negative mothers (surprisingly similar between HIV positive and negative women); mostly with family members and very few with friends. This was higher than in other similar studies in Africa (e.g. in Burkina Faso: 31.6% shared with the partner, Issiaka et al., 2001, and in Tanzania 40% after 4 years, Antelman et al., 2001, 50% not to father of the child in Khayelitsha, Hilderbrand et al., 2003, and in a review from 17 studies in developing countries the rates of disclosure reported in these studies ranged from 16.7% to 86%, with women attending free-standing voluntary HIV testing and counselling clinics more likely to disclose their status (Medley et al., 2004).

Only 66 (57%) of the HIV positive pregnant women had been provided with ~~This finding~~ nevirapine at follow-up. There was no significant difference in taking Nevirapin (for the mother and the infant) between home and health facility delivery. The equally high Nevirapin update between home and health facility delivery may be attributed to the specifically designed Nevirapin pack for women to take home (Fomundam et al. 2005). Also other studies showed similar rates of loss at follow-up, for mothers 45% and babies 34% in a rural district hospital in Malawi (Manzi et al., 2005). The progressive loss to follow up of more than three-quarters of this cohort by the 6-month postnatal visit demands a 'different way of acting' if PMTCT is to be scaled up in this setting.

Almost half (43.4%) of the women indicated that they had delivered their baby in a home-based setting; 189 (43.5%) were assisted by a relative or friend, 187 (42.1%) by a traditional birth attendant and 58 (13.3%) by no one. HIV positive women delivered their baby more often in a home-based setting than in a health facility,

while HIV negative women (and those women with unknown HIV status) more frequently delivered in a health facility than at home. Major reasons for home delivery included own decision, familiar with TBA, relatives' decision and unfriendly health facility. The same women had been assessed prenatally, and from those who had delivered before, 44.1% had delivered their last child at home (mostly without assistance from a traditional birth attendant). The odds of access to the health facility were (1) women who stayed close to the hospital (OR=2.87), (2) those who had higher formal education (OR=1.55), (3) higher traveling costs (affordability) to get to nearest clinic (OR=1.77), and (4) those who were single (OR=1.58). Childbirth experiences of the mother or mother-in-law greatly influenced the delivery choices in terms of home delivery (Peltzer et al., 2005). From the same prenatal assessment, almost all pregnant women, their mothers or mother-in-laws and partners or husbands intended to deliver the current pregnancy in a health facility, which was obviously not the case, with 43% having delivered in a health facility elsewhere has shown that most of these women intend to deliver at health facilities but cannot find transport when they go into labour at home (Tsoka et al. 2003). Although this was also mentioned here as a reason for home delivery social influence factors (spouse, relatives) seem to have more important and also unfriendly health facility. TBAs should be trained in assisting PMTCT in remote areas (Shangase et al. 2005, Peltzer et al. submitted).

HIV positive mothers mostly formula fed (42%) their infants, followed by mixed feeding (34%) and exclusive breast feeding (24%). Mothers who were HIV negative and of unknown HIV status predominantly breastfed their infants (39% and 36% respectively), followed by mixed feeding (33% and 34% respectively) and surprisingly more than a quarter formula fed their infants. The study found that the MTCT programme resulted in increased rates of exclusive formula feeding among HIV positive mothers. In some of the PMTCT study sites logistical problems with the supply of formula. Doherty et al. (2005) also found in a several PMTCT sites in South Africa that mothers reported periods when no formula was available. In a study in Khayelitsha, Cape Town, over 95% of women on the PMTCT programme formula-fed their infants and did not breast-feed at all (Hilderbrand et al. 2003).

Almost four in five women got counselling on safe sex during pregnancy but only two in three women practiced safe sex during pregnancy, which did not differ by HIV status. Postnatally, almost all women received counselling on family planning. Half of the women used condoms, one in three hormonal injections and one in five the pill. HIV positive women used more often condoms but not other forms of contraception than HIV negative women. Nebie et al. (2001) also found poor use of contraceptive methods despite regular advice and counseling. Pregnancy incidence among HIV positive women remained comparable with the pregnancy rate in the general population. To improve this situation, approaches for involving husbands or partners in VCT and prevention of MTCT interventions should be developed, evaluated, and implemented

From the 40 infants followed-up, 17 were HIV negative, 2 HIV positive, 2 had died and 16 had not been tested. Although numbers are small, there was a high rate of

Nevirapin administration. Doherty (2003) notes that the current PMTCT programme in South Africa has been unsuccessful in ensuring continued care of HIV-exposed children due to an extremely high loss to follow-up rate. In the Gauteng province alone, only 10% of children requiring HIV testing at 12 months were tested during an eight month period in 2001. Socio-economic factors such as poverty, geographical relocation and a lack of paternal support may affect the capacity of families to comply with the PMTCT follow-up programme. Fifty-seven percent of mothers were unemployed, 25% of fathers did not support their children and only 58% of children remained resident in Johannesburg at the 12-month visit. The lack of follow-up of HIV-infected children denies them access to adequate medical care (Jones et al., 2005). Sherman et al. (2004) found in a Johannesburg based hospital HIV transmission rates of 8.7% at 6 weeks and 8.9% at 3 months of age in the study population verifying a high rate of NVP administration and the ability of women to formula-feed their babies and abstain from breast-feeding. More than one-third of infants never return for follow-up and more than 70% are lost to follow-up by 4 months of age. The low HIV transmission rate confirms the efficacy of this service PMTCT programme. HIV-infected children are not being identified for medical management as part of PMTCT follow-up. It is imperative that record keeping is improved to facilitate ongoing monitoring.

Recommendations

- Use of HIV testing needs to be increased. Group and individual HIV testing counselling may need to be encouraged to increase VCT uptake.
- Improving the quality of HIV, infant feeding and family planning counselling by providing job aids and active supervision. Within safer infant feeding counselling, an increased emphasis should be placed on “no mixed feeds”.
- ARV treatment to prevent mother-to-child transmission needs to be
- ~~improved~~ Family planning utilization rate among HIV positive mothers need to be increased.
- Reinforce need for condom use/safer sex throughout breastfeeding to prevent reinfection (or new infection among HIV negative new mothers).
- HIV testing of infants needs to be improved.
- More effective case management through community-based approaches that encourage facility-community collaboration.

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