

# The impact of community health workers and improved monitoring on PMTCT programmes in the Free State Province: A randomised control trial



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Abstract number

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## Background

There is a global call for the virtual elimination of paediatric HIV by 2015. However, in South Africa, challenges remain in implementing the PMTCT programme, creating missed opportunities for coverage. In particular, a significant proportion of vertical transmission is attributable to maternal seroconversion during late pregnancy and breastfeeding. Many HIV-negative women are not retested at 32 weeks gestation, per guidelines.

Through sharing and shifting tasks, community health workers (CHWs) can increase access to antenatal services, particularly through the improvement of patient knowledge and assisting services in other capacities. Facility-based CHWs can be used to support clinical tasks, as well as to educate and empower HIV-positive pregnant women in order to reduce missed opportunities for intervention, to improve PMTCT coverage.

## Aim

To assess the impact of a facility-based CHW information and support intervention aimed at a reducing a range of barriers in an HIV-infected pregnant women's movement through the PMTCT cascade.

## Methods

Using a pragmatic cluster randomised control trial design, we placed CHWs at 16 primary-level PMTCT services in the Motheo District, Free State Province, between April 2011 and March 2013. In total, 32 health facilities were randomly identified as intervention or control sites where at least 100 women per month started antenatal care.

Seventeen CHWs were recruited and trained in HIV/AIDS, the PMTCT protocol and maternal and child health. They provided individual support to pregnant women accessing the facilities, and hosted in-facility health promotion sessions in the waiting room and external community-based events in malls and taxi ranks, to raise PMTCT awareness. CHWs used a package of HIV Treatment and Prevention Literacy information, which covered counselling and support, continuity of care and how to negotiate the health service. They followed up women individually to promote HIV testing and linkage to care. At each antenatal visit, women were offered a one-on-one meeting with a CHW, who provided information on managing HIV during pregnancy and postpartum. The CHWs undertook task-sharing activities such as HCT and ARV preparedness at intervention sites, including telephonic and SMS reminders for eligible women to retest at 32-weeks.

A range of PMTCT indicators was collected to assess the impact of CHWs in improving the coverage of PMTCT services. The primary outcome, PMTCT coverage, was defined as the proportion of HIV-infected antenatal clients who received AZT or who were on ART at time of delivery.

At all sites, a training and feedback intervention on the collection and use of monthly PMTCT programme indicator data was conducted to strengthen reporting. Using this improved routine collection system, we analysed the aggregate performance of each clinic, looking at trends over time over 8 quarters. We used a logistic regression model to evaluate the difference between intervention and control sites.

Ethical approval for the study was granted by the UCT Human Research Ethics Committee, and the study was approved by the Free State Provincial Department of Health.

## Results

At baseline (Q1), there were no significant differences between intervention and control sites regarding the proportion of early antenatal bookings (OR: 0.94, 95% CI: 0.77-1.14); antenatal first HIV test (OR: 1.15, 95% CI: 0.34-3.85); antenatal PMTCT coverage (OR: 1.34, 95% CI: 0.75-2.41) and antenatal HIV prevalence (OR: 0.87, 95% CI: 0.59-1.27).

Time series analysis showed increases in antenatal PMTCT cascade indicators in all sites over time, with a significant change in early antenatal booking, HIV and CD4 testing and PMTCT coverage (Table 1). The proportion of positive PCR tests decreased from 2.2% to 1.9%.

Logistic regression modeling (Table 2) showed the odds of higher PMTCT coverage in the intervention sites over time, however, this was not statistically significant (OR: 1.12, 95% CI: 0.86-1.46). The odds of a 32 week retest were significantly higher at the intervention sites (OR: 1.32, 95% CI: 1.03-1.69).

Table 1: Trends in PMTCT cascade indicators at all sites, April 2011-March 2013

PMTCT indicator	Q1 (%)	Q2 (%)	Q3 (%)	Q4 (%)	Q5 (%)	Q6 (%)	Q7 (%)	Q8 (%)	P-value
Antenatal HIV prevalence	26.5	26.8	28.3	27.6	26.7	25.2	29.7	28.0	p=0.160
First antenatal visit <20 weeks	42.7	43.3	46.2	46.4	51.5	54.0	53.3	52.2	P<0.001
Antenatal first HIV test	94.9	97.1	99.4	100.0	100.0	100.0	100.0	100.0	p<0.001
Antenatal first CD4 test	93.6	90.8	95.2	99.8	99.9	98.2	99.4	99.5	p<0.001
Antenatal retest at 32 weeks	-	47.6	42.2	47.0	42.4	52.1	52.0	56.1	p=0.320
PMTCT coverage	77.8	76.3	75.1	72.3	76.3	77.7	75.6	85.7	P<0.05
Positive PCR test	2.2	2.4	1.8	1.9	2.2	2.3	1.0	1.9	p=0.153

Table 2: Logistic regression model

PMTCT indicator	Site		Time	
	Odds ratio	95% CI	Odds ratio	95% CI
First antenatal visit <20 weeks	0.95	(0.80 - 1.13)	1.07	(1.04 - 1.10)
Antenatal first HIV test	0.87	(0.35 - 2.17)	3.03	(2.25 - 4.08)
Antenatal first CD4 test	0.69	(0.40 - 1.20)	1.60	(1.39 - 1.83)
Antenatal retest at 32 weeks	1.32	(1.03 - 1.69)	1.02	(0.97 - 1.08)
PMTCT coverage	1.12	(0.86 - 1.46)	1.06	(1.00 - 1.11)
Positive PCR test	1.06	(0.68 - 1.60)	0.91	(0.80 - 1.03)



Checking vital signs at a community event. Talking to patients in clinic waiting area

## Conclusions

Overall, PMTCT coverage improved during our study, although there was no significant difference between intervention and control sites. The changes could have been due to the intensified routine monitoring implemented in all sites. The greater 32 week re-testing rate in the intervention sites suggests that CHWs positively influenced continuity of care. During our study, PMTCT policy became a national priority, and by increasing eligibility for ART and providing NIMART and outreach services to antenatal services, it is possible that with the unexpectedly high baseline rates, the study was under-powered to detect differences in the main outcome.