

## **Where are the men? Targeting male partners in preventing mother-to-child HIV transmission**

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Involvement of male partners may increase adherence to and improve outcomes of programs to prevent mother-to-child HIV transmission (PMTCT). Greater understanding of factors impeding male voluntary HIV counseling and testing (VCT) is needed. A cross-sectional study was conducted in Tshwane, South Africa. Semi-structured interviews were completed with men whose partners had recently been pregnant. Of 124 men who participated, 94% believed male HIV testing was important, but 40% had never been tested. Of those tested, 32% were tested during the pregnancy, while 37% were tested afterward. Fifty-eight percent of men reported that their female partners had disclosed their

test results during pregnancy. A man's likelihood of testing during pregnancy was associated with prior discussion of testing in PMTCT, knowing the female partner had tested, and her disclosure of the test result (all  $p < 0.05$ ). In terms of increasing male-partner HIV testing rates, 74% of the men reported they would respond favorably to a written invitation for VCT from their partners. Based on themes that emerged during the interviews, six partner invitation cards to encourage male involvement in PMTCT were designed. Responses to the cards were elicited from 158 men and 409 women. One invitation card framed by the themes of fatherhood and the baby was selected by 41% of men and 31% of women as the most likely for women undergoing PMTCT to bring to their male partners and the most successful at encouraging men to be tested. In conclusion, this study found that a substantial proportion of men whose partners were recently pregnant had never been tested themselves; of those who had tested, most had done so only after the pregnancy. Encouraging partner communication and clinic attendance using an invitation card could facilitate increased male testing and participation in PMTCT.

Keywords: men; male partner; PMTCT; VCT; HIV testing; partner invitation

## **Introduction**

Programs to prevent mother-to-child HIV transmission (PMTCT) have historically focused on women, to the exclusion of their male partners, resulting in low rates of HIV testing among men during their partners' pregnancies (Katz et al., 2009, Msuya et al., 2008, Chandisarewa et al., 2007). The underlying reasons likely include HIV-associated stigma (Greig et al., 2008, Montgomery et al., 2006), the perception that clinics are not "male-friendly" (Misiri et al., 2004, Falnes et al., 2011, Theuring et al., 2009), and the fact that men are not invited to participate (Mullany, 2006).

Efforts to increase rates of male voluntary HIV counseling and testing (VCT) in PMTCT programs in sub-Saharan Africa have had limited success (Msuya et al., 2008), with rates of testing mirroring those for pregnant women across the region (Kiarie et al., 2006, Kizito et al., 2008, Semrau et al., 2005, Shetty et al., 2008). When men do test, however, adherence to

PMTCT may increase (Msuya et al., 2008); one study has demonstrated a reduction in HIV-associated infant mortality (Aluisio et al., 2011). Male-partner involvement may also lower transmission risk to sexual partners, which has been shown to be greatest within established partnerships (Dunkle et al., 2008) and increased during pregnancy (Mugo et al., 2011). Despite HIV-positive women's assumptions about sero-concordance, studies in South Africa have shown that at least one quarter of male partners of HIV-positive women are HIV-negative (De Bruyn et al., 2006, Geddes et al., 2008). Although individuals who know they are HIV-positive are more likely to practice safer sex (Marks et al., 2005), this is less likely if a woman fails to disclose her HIV status, fearing abandonment, violence, or accusations of infidelity (Doherty et al., 2006, Maman et al., 2001, Sigxashe et al., 2001, Skinner and Mfecane, 2004).

To date, attempts to understand why men do not test during their partners' pregnancies have been limited. The purpose of this study was two-fold: first, to examine factors associated with men testing during pregnancy; and second, to elicit men's and women's responses to six partner invitation cards designed to encourage men to attend the clinic for VCT and facilitate discussions between partners.

## **Methods**

This cross-sectional study was conducted in two phases. Phase 1 involved interviews with men whose female partners had recently been pregnant. In phase 2, we recruited men and women to evaluate partner invitation cards.

Subjects were recruited during June–August, 2009, from one health-care center in Mamelodi Township in Tshwane (Pretoria), South Africa, where HIV seroprevalence of women testing during pregnancy is approximately 25% (Visser et al., 2009). For phase 1, men who attended the clinic were invited to participate, and were also referred by clinic staff, community

practitioners, and other participants. Men were eligible if they had a child under age 3 and their partners had attended antenatal care at the clinic while PMTCT was in effect.

We conducted semi-structured interviews, collecting information about sociodemographic characteristics, HIV knowledge (Visser et al., 2009) and perceived stigma using established scales (Visser et al., 2008), and information about HIV-testing and communication during pregnancy. Statistics were calculated using SPSS (Chicago, Ill.), with the chi-squared test for categorical data and Student's t-test or ANOVA for continuous data.

For phase 2, six invitation cards were designed using themes that emerged after manual coding of qualitative data from phase 1 about reasons for and barriers to male VCT. Male and female clinic attendees who were expecting or had a child under age six were invited to evaluate the cards. Subjects were asked to select the card most likely to: (1) be taken home to and read by male partners; (2) elicit a favorable response from male partners; or (3) be successful in encouraging men to seek VCT.

Ethics approval was obtained from the University of Pretoria, South Africa, and Yale University, USA.

## **Results**

One-hundred-twenty-four men participated in phase 1 (Table 1). Fifty-five men were recruited among clinic attendees; 33 were referred by participants, 21 by clinic staff, and 15 by community practitioners.

### ***HIV knowledge***

The range of scores on the 20-point HIV knowledge questionnaire was 7–19 (mean=12.3, SD=2.6). Subjects performed most poorly on questions about PMTCT (e.g., “all babies being

**Table 1.** Sociodemographic characteristics.

	n = 124	(%)
<b>Age</b>		
Under 30	39	(31.5)
30–40	60	(48.4)
Over 40	25	(20.1)
Mean age (SD)	33.9	(7.8)
<b>Education</b>		
None or primary	18	(14.5)
Secondary	80	(64.5)
Tertiary	26	(21.0)
<b>Employment</b>		
Employed full-time	58	(46.8)
Employed part-time	27	(21.7)
Unemployed	39	(31.5)
<b>Monthly income</b>		
No income	40	(32.3)
R1–999 (USD1–150)	5	(4.0)
R1000–1999 (USD150–300)	23	(18.5)
R2000–2999 (USD300–450)	31	(25.0)
R3000–3999 (USD450–600)	8	(6.5)
R4000+ (USD600+)	17	(13.7)
<b>Marital status</b>		
No partner	21	(16.9)
Single with partner	56	(45.2)
Married	47	(37.9)
<b>Mean number of children (SD)</b>	2.5	(1.5)

SD, standard deviation.

breastfed by women with HIV will get HIV” (16.1% correct)).

### *Men’s beliefs and experiences with VCT*

One-hundred-seventeen (94.4%) men believed male HIV testing is important, but only 74 (59.7%) had ever been tested, with 39 (31.4%) having tested during their partners’ pregnancy and 46 (37.1%) testing after the pregnancy (Table 2). Of the 74 who had been tested, 34 (45.9%)

reported a positive result. Nineteen of the 34 (55.9%) received their first positive test after their partners' last pregnancy, and for 13 of these (38.2%) it was their first-ever HIV test.

**Table 2.** Men's HIV testing and timing of positive result.

	<b>Number of men tested<sup>a</sup></b>	<b>Number of men receiving first positive result</b>	<b>Proportion positive (%)</b>
<b>Never tested</b>	50		
<b>Tested:</b>			
Before pregnancy	53	9	(17.0)
During pregnancy	39	6	(15.4)
After pregnancy	46	19	(41.3)

<sup>a</sup> Numbers include repeat testing at different times.

### ***Men's knowledge of female partners' HIV testing in PMTCT***

Although PMTCT programs include routine HIV testing of women, only 94 (75.8%) men reported having been told of their partners' testing, of which 25 (26.6%) said the results were positive. Twenty-three (92%) of these men had been tested and 21 of the 23 (91%) had received a positive result. In contrast, of the 69 men who were told by their partners about a negative test result, 41 (59.4%) men sought VCT, and nine (22.0%) received a positive result.

Fifty-seven (46%) participants reported having discussed HIV testing and its ramifications with their partners before their partners received VCT during PMTCT.

### ***Factors associated with male HIV testing during pregnancy***

None of the sociodemographic variables or scores on the stigma scale was significantly associated with testing, while higher HIV knowledge scores were positively associated (Table 3). Men who had discussed testing with their partners, who knew their partners had been tested, or whose partners reported a positive test were more likely to have been tested.

A man was significantly more likely to have discussed HIV testing with his partner if he was married to her (52.6% vs. 23.3%,  $p < 0.01$ ) and if he described his relationship as “exclusive” (96.5% vs. 83.7%,  $p = 0.05$ ).

**Table 3.** Factors affecting men’s HIV testing.

	Man was tested		
	Yes	No	p
<b>Sociodemographics</b>			
Education (secondary school)	86.5%	84.0%	0.18
Marital status (married)	39.2%	36.0%	0.15
<b>Mean HIV knowledge score (SD)</b>	12.7 (2.6)	11.8 (2.5)	0.046
<b>Mean HIV perceived stigma score (SD)</b>	6.9 (3.4)	7.4 (2.9)	0.66
<b>During most recent pregnancy</b>			
Discussed HIV testing with partner before she was tested	64.6%	42.9%	0.05
Knew female partner was tested	87.8%	70.0%	0.01
Partner disclosed result of her test during pregnancy	76.9%	62.9%	0.033
Partner tested HIV positive	35.4%	5.7%	0.005
<b>Beliefs about HIV testing</b>			
Male testing is important	98.6%	88.0%	0.012
Would accept partner's invitation	86.5%	56.0%	0.001
Gender of VCT counselor is important	47.3%	58.0%	0.24

SD, standard deviation.

### ***Responses to partner invitation cards***

A majority of phase 1 participants (74.2%) said they would have attended VCT during pregnancy if presented with a written invitation. Based on narrative responses about barriers to male VCT collected in phase 1, five themes were identified relating to self, the baby, fatherhood, practical concerns, and the HIV test. Using these in different combinations, we developed six partner invitation cards (Figure 1).

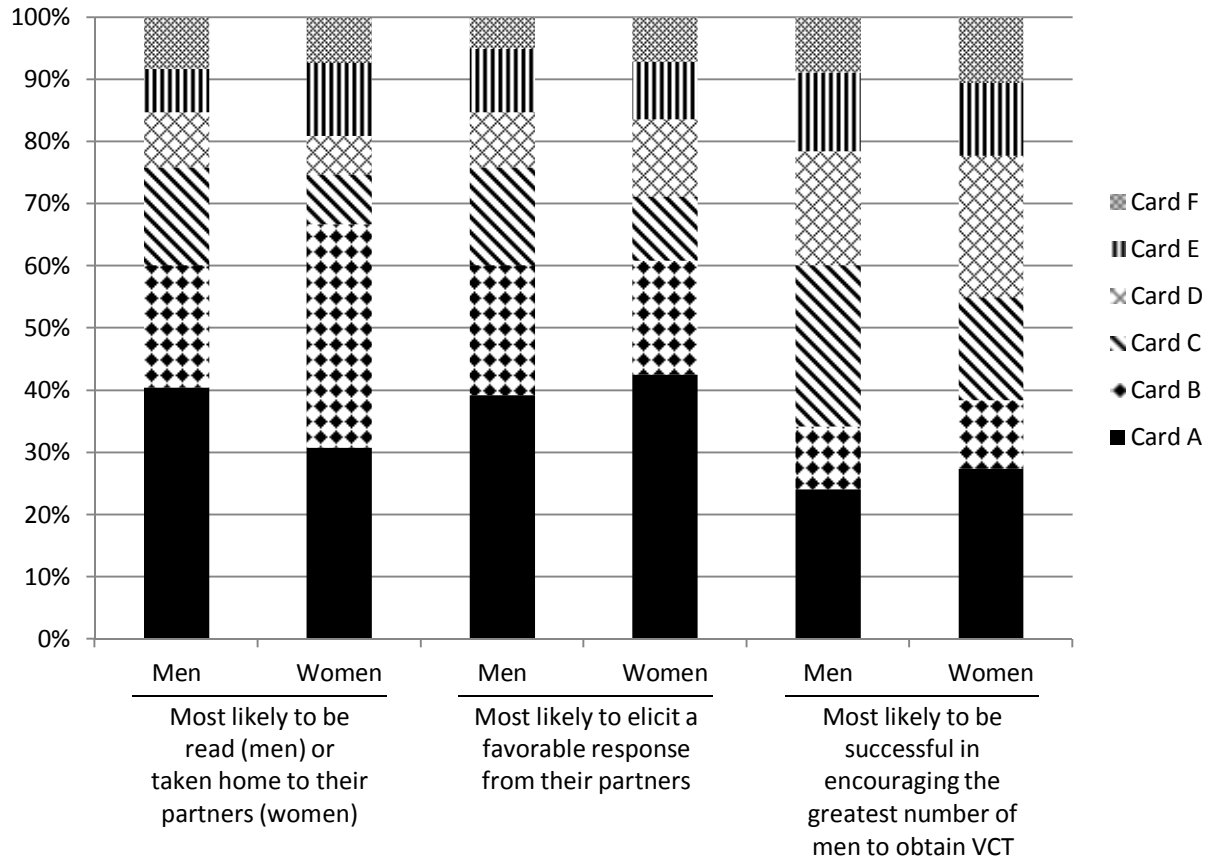
**Figure 1.** Partner invitation cards were developed based on five themes (self, the baby, fatherhood, practical concerns, and the HIV test itself) identified from interviews with fathers in phase 1 of the study. Themes were used in combination: (A) the baby and fatherhood; (B) self and the baby; (C) self; (D) fatherhood and practical concerns; (E) the baby and the HIV test; (F) the baby and practical concerns.



In phase 2, 158 men and 409 women were invited to choose from the six cards in response to three questions (Figure 2). Card A, which focused on the baby and fatherhood, was most frequently chosen by men and women overall. Over 60% of respondents selected card A or B, both of which featured the baby and the man, as most likely to be presented by women and to



**Figure 2.** Partner invitation cards were selected in response to three questions about the likely success of the cards in being taken home, read, and eliciting a favorable response from male partners and men in general to seek HIV testing.



elicit a favorable response from men. Participants had mixed preferences about which card would encourage the most men to obtain VCT: 26% of men chose card C, which focused only on the man with no mention of fatherhood or the baby.

## Discussion

In South Africa, more than 95% of pregnant women are reported to participate in PMTCT and receive VCT (WHO et al., 2010), but despite this high level of testing of women, this study demonstrated that 40% of male partners had never been tested. Furthermore, a quarter of the

men had not been told the result or did not know whether their partners had been tested during PMTCT. As is true elsewhere, the clinic involved in this research had no specific initiatives relating to partner testing beyond the advice given to individual women during counseling.

Because discussion between partners about VCT is associated with increased testing among men (Gage and Ali, 2005), an invitation card could help women initiate dialogue about VCT and encourage male testing. In this study, women who evaluated six invitation cards were enthusiastic about taking the cards to their partners, and both male and female respondents selected card A as most likely to be successful.

A limitation of the study was that it was conducted with a convenience sample enrolled through a clinical setting, thus potentially biasing enrollment toward individuals who had health-care needs or might be more likely to accept an invitation card. This likely explains the high proportion of HIV-positive male participants and may have contributed to the association between HIV knowledge scores and testing. It is unlikely, however, to have magnified the results illustrating the failure of male VCT and the poor communication between partners.

This study found that despite a large proportion of men never having been tested for HIV and very few obtaining VCT during their partners' pregnancy, most reported they would respond to an invitation from their partners to attend VCT. An invitation card framed by themes of fatherhood and the baby was selected by both men and women as most likely to facilitate partner communication and encourage male testing during pregnancy. Further investigation of invitation cards as a low-cost, culturally-appropriate intervention may help maximize the impact of PMTCT in resource-poor settings.

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