

## Abstract

### *Trichomonas vaginalis* is associated with HIV-1 in high-risk migrant men and women living in inner-city settlements in Johannesburg, South Africa

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**Background** Little is known about the epidemiology of *Trichomonas vaginalis* (TV) in urban populations in Africa. We conducted a survey to determine the prevalence of TV and associations with HIV-1 and other risk factors in high-risk migrant men and women living in inner-city Johannesburg.

**Methods** A cluster-sampling community-based survey was conducted in 2003-2004 among 1458 male hostel residents in Johannesburg and 1002 women in adjacent informal settlements. Participants aged >18 recruited from various locations provided socio-demographic, mobility, behavioural and health data. TV, *Chlamydia trachomatis* (CT) and *Neisseria gonorrhoeae* (NG) were determined by PCR in urine samples. Saliva was tested for HIV-1 antibodies using Orasure<sup>®</sup> ELISA. Predictors of TV were identified using multivariable logistic analysis adjusting for recruitment site.

**Results** TV was detected in 81/1438 (5.6%) men and 188/991 (19.0%) women; 95% and 94% of infected men and women were asymptomatic. 345 (24.0%) men and 549 (55.5%) women were HIV-1 seropositive. Infection with CT and NG were 5.2% and 1.9% in men; and 11.1% and 2.0% in women. HIV-1 was associated with TV in both men (adjusted OR=1.77; 95% CI 1.08–2.91; p=0.023) and women (adjusted OR=1.53; 95% CI 1.07–2.18; p=0.020). Other risk factors for TV are indicated in the Table. These included smoking and an inverse relationship with perception of safety for both men and women, whilst other factors differed by sex.

**Conclusions** TV was highly prevalent and was consistently associated with HIV-1 in this high-risk urban migrant population, with approximately 95% of infections being asymptomatic. Prevention and management of TV in these communities will require screening programmes. The extremely high HIV-1 prevalence rates observed call for urgent and innovative interventions in this high-risk inner-city environment.

Table: Multivariable model of associations with *T. vaginalis*

Risk factor		TV/Total (%)	Odds Ratio	95% CI	p-value
Men		81/1438 (5.6)			
Cigarette smoker		50/666 (7.5)	2.27	1.40–3.69	0.001
Alcohol drinker		32/686 (4.7)	0.51	0.31–0.83	0.006
Experienced or witnessed violence in last month		28/351 (8.0)	1.90	1.16–3.12	0.011
Perception of safety	Very unsafe	22/434 (5.1)	1.36	1.02–1.80	0.033
	Unsafe	32/676 (4.7)			
	Safe	20/273 (7.3)			
	Very safe	7/50 (14.0)			
Home language/ethnic group	isiZulu	73/1376 (5.3)	1		
	Other	8/62 (12.9)	2.42	1.02–5.76	0.046
HIV-1 seropositive		27/345 (7.8)	1.77	1.08–2.91	0.023
Women		188/991 (19.0)			
Cigarette smoker		19/63 (30.2)	1.87	1.02–3.43	0.045
History of tuberculosis		25/86 (29.1)	2.13	1.25–3.62	0.006
Perception of safety	Very unsafe	30/237 (12.7)	1.33	1.07–1.64	0.009
	Unsafe	101/455 (22.2)			
	Safe	43/243 (17.7)			
	Very safe	12/54 (22.2)			
Reports genital discharge in last 6 months		49/317 (15.5)	0.63	0.43–0.92	0.018
Chlamydia trachomatis infection		40/110 (36.4)	3.05	1.92–4.85	<0.001
HIV-1 seropositive		121/549 (22.0)	1.53	1.07–2.18	0.020