

Supplementary Material

Prevalence of sexually transmissible infections and HIV in men attending sex-on-premises venues in Australia: a systematic review and meta-analysis of observational studies

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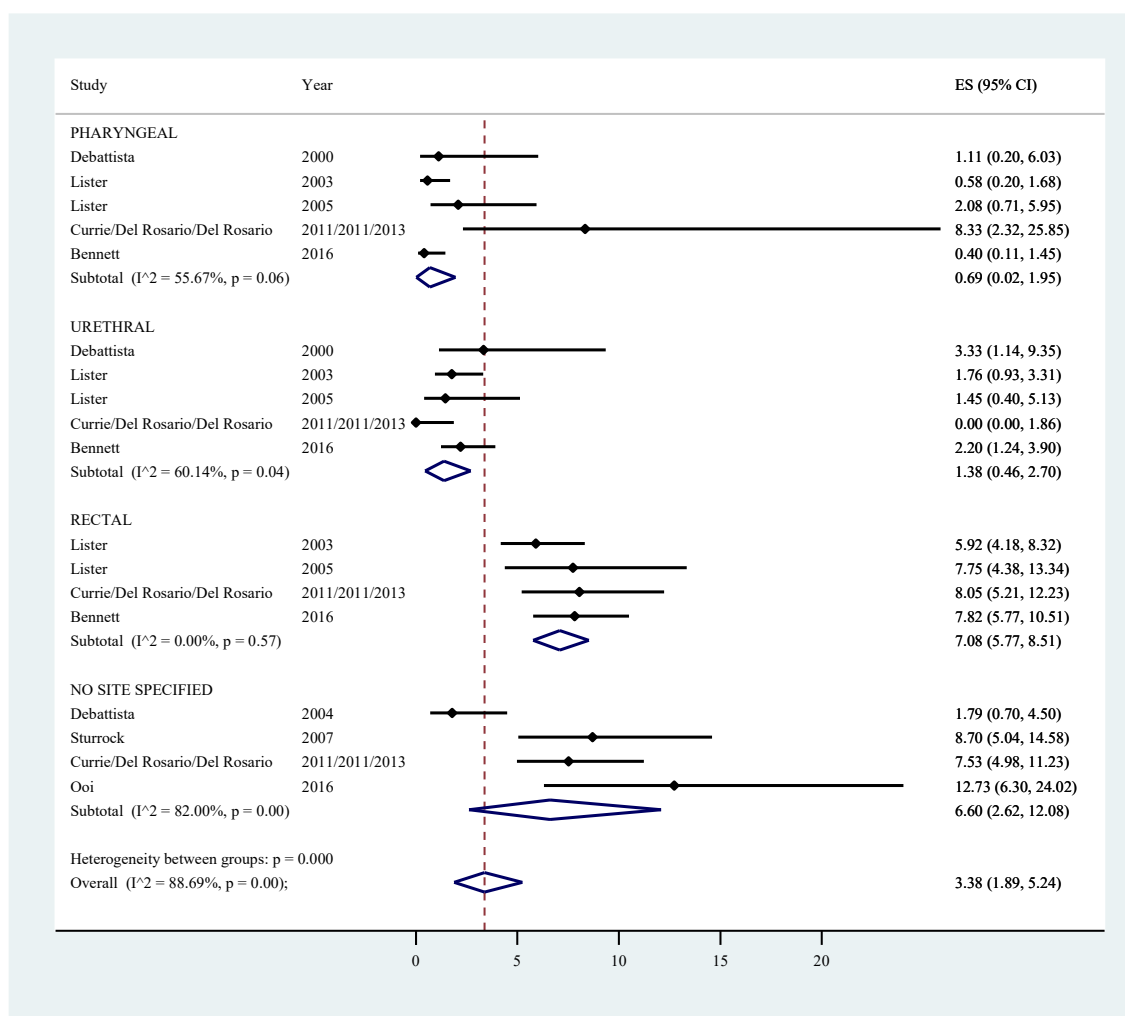
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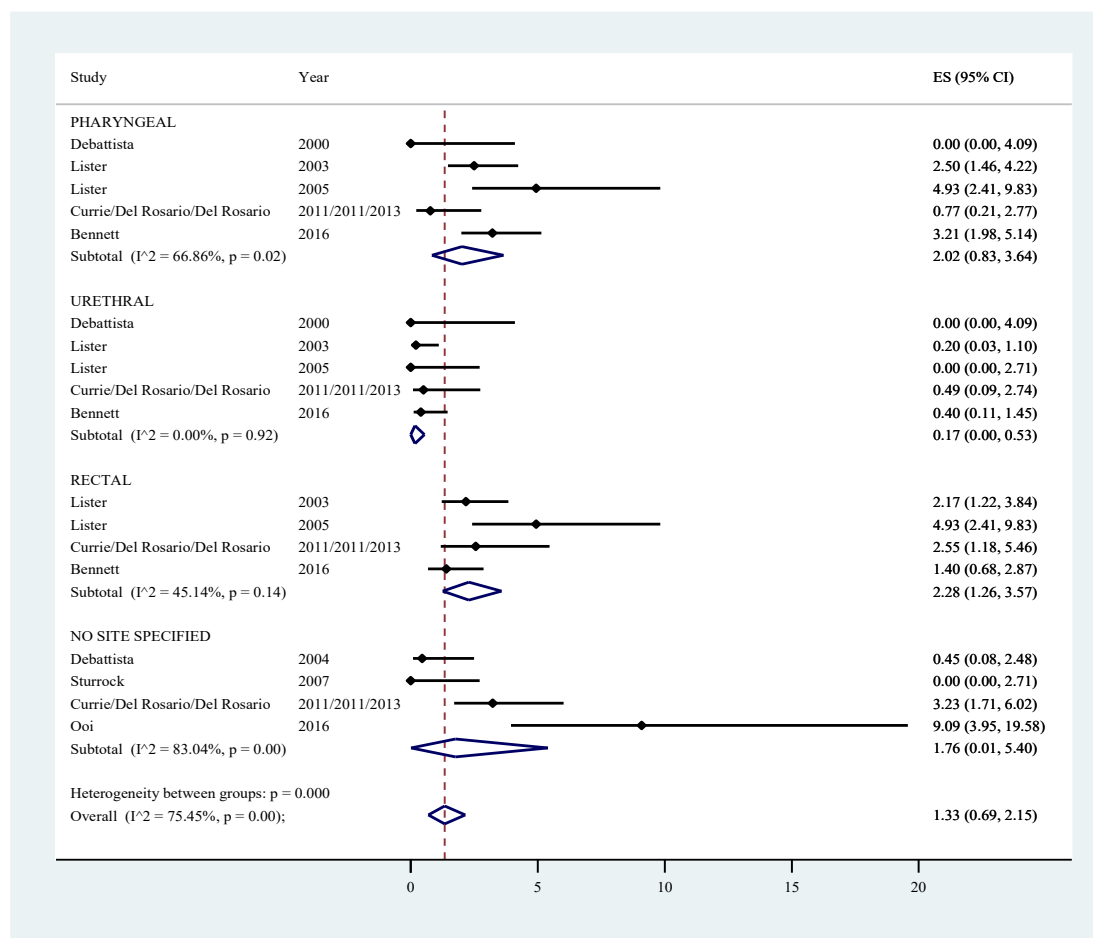
Figure S1. Prevalence of *Chlamydia trachomatis* by site



Random effects model.

Abbreviations: CI, confidence interval; *I*-squared, test for heterogeneity; ES, effect size

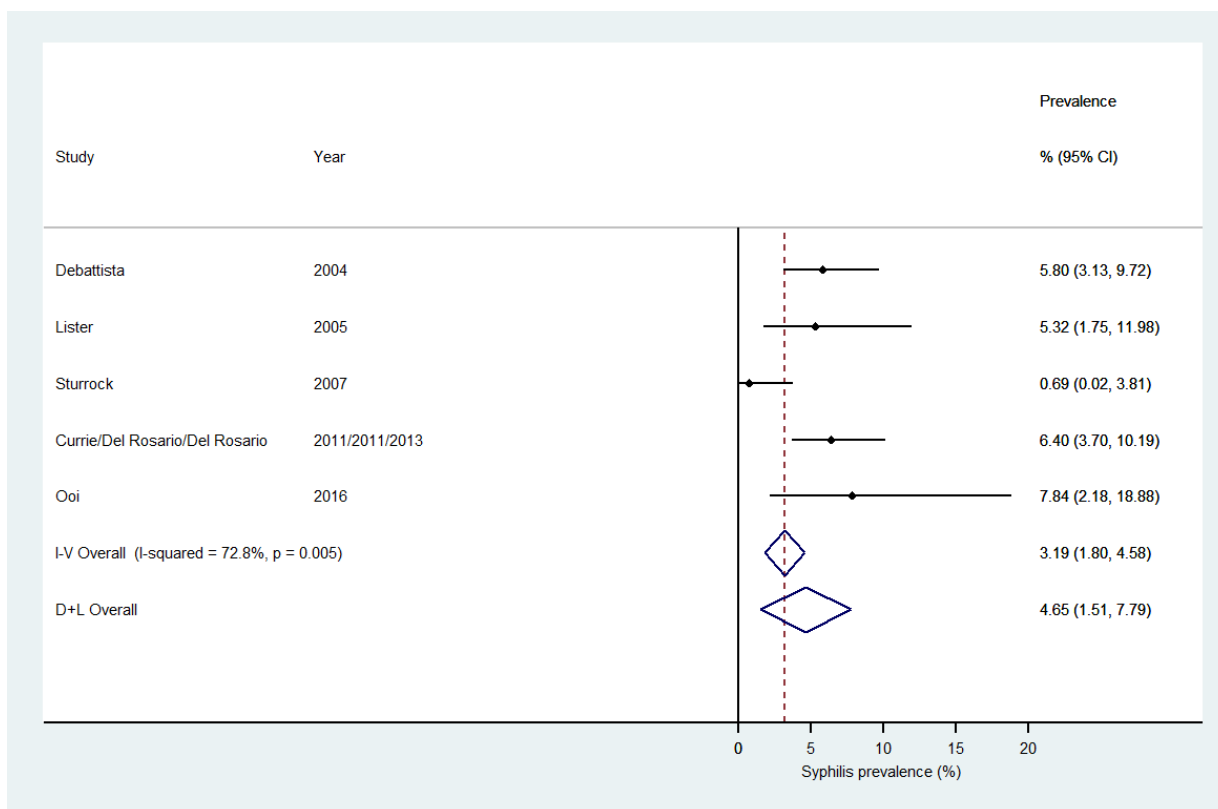
Figure S2. Prevalence of *Neisseria gonorrhoeae* by site



Random effects model.

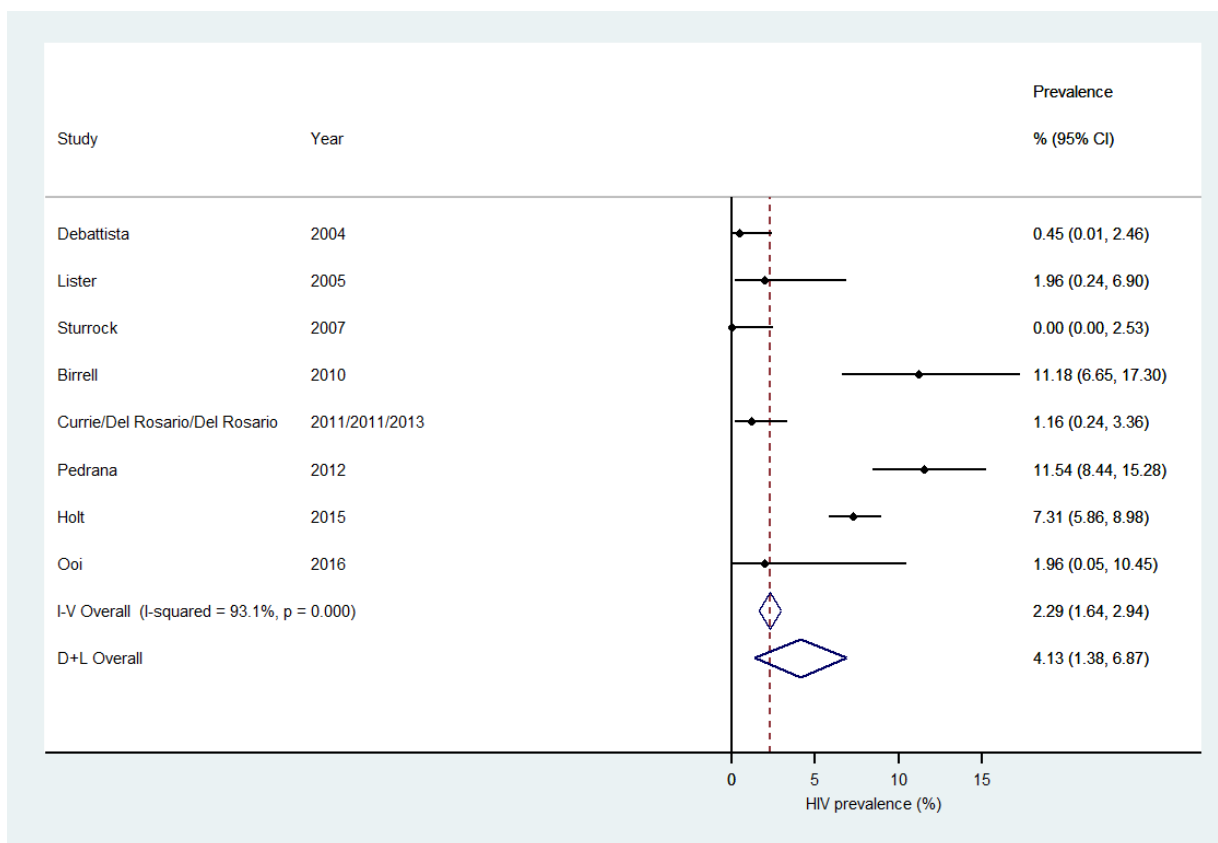
Abbreviations: CI, confidence interval; I -squared, test for heterogeneity; ES, effect size;

Figure S3. Prevalence of Syphilis



Abbreviations: CI, confidence interval; D + L, DerSimonian and Laird (random effects) estimate; I-squared, test for heterogeneity; I+V, Inverse-variance (fixed effects) estimate

Figure S4. Prevalence of Human Immunodeficiency Virus



Abbreviations: CI, confidence interval; D + L, DerSimonian and Laird (random effects) estimate; I-squared, test for heterogeneity; I+V, Inverse-variance (fixed effects) estimate

Table S1. Assessment of bias

Study, publication year		
Type of bias	Judgment	Support for judgment
Dwyer, 2000(41)		
Methods for selection of participants	Moderate risk ++	Participants recruited from 2 SOPVs. Convenience sample. Screening methodology was not given, unclear if consecutive patients were recruited. Serviced by Health workers. Participants were actively recruited and self-selected. <i>'Specimen collection conducted by two health workers at the venue was set up in the venue toilet facilities close to the entrance where patrons accessed lockers. In this way, many patrons could be spoken with soon after entry. At random intervals, the health workers would circulate among patrons occupying the lounge area, discussing the programme with individual patrons, distributing advertising leaflets and soliciting for specimens'</i> promotional fliers for testing programme circulated 1 month before No inclusion or exclusion criteria were provided. Incentives not reported
Methods for measuring exposure and outcome variables	High risk +++	Culture used for oro-pharyngeal gono testing may underestimate prevalence. Only 1 sopv collected gono oro-pharyngeal swabs. No ano-rectal swabs collected. Collection of oro-pharyngeal swab (health worker or participant) not reported Recent use of antibiotics not reported. Last STI testing not reported.
Methods to control confounding	Moderate risk ++	Unclear if participants were symptomatic as No sexual/medical history collected <i>'Given the location of the intervention, no attempt was made to record sexual or medical histories, so it was not possible to conclusively determine whether these infections were asymptomatic. However, it can be assumed that any person with overt symptoms would have self disclosed'</i>
Statistical methods	NR	Not reported. Small sample size= 90
Conflict of interest	NR	Not reported

Lister, 2003(32)		
Methods for selection of participants	Moderate risk ++	Participants recruited from 6 SOPVs. Convenience sample. Serviced by Health care workers. Participants were actively recruited <i>'patrons were only approached if they were 1) Standing or sitting alone, 2) In an area with good lighting, and 3) in areas thought to be unlikely sites for sexual activity...'</i> promotion only during recruitment times no patient identifying details collected No inclusion or exclusion criteria were provided. No patient incentives
Methods for measuring exposure and outcome variables	Moderate risk ++	Sexual history collected Recent use of antibiotics not reported. ('treatment' for sexual health was reported) Last STI testing not reported Patient collected ano-rectal sample, nurse collected oro-pharyngeal swab Unclear if all participants offered complete testing (vs risk based) Unclear if patrons participated on only 1 occasion; or at only 1 site
Methods to control confounding	Moderate risk ++	Authors discussed use of NAATS in ano-rectal and oro-pharyngeal sites, STIs in participants who recently accessed care for sexual health
Statistical methods	Moderate risk ++	Sample size = 521
Conflict of interest	+	reported
Debattista, 2004(40)		
Methods for selection of participants	Moderate risk ++	Retrospective review of patient records. 1997-2003. Participants recruited from 2 SOPVs. Convenience sample. Screening methodology was not given, unclear if consecutive patients were recruited. Serviced by Health care workers. Participants were actively recruited and self selected. Only participants who had syphilis testing were included. Incentives not reported
Methods for measuring exposure and outcome variables	Moderate risk ++	Syphilis test modality not reported Patient presentation not reported, unclear how stage of infection was determined. Participants declining syphilis testing not reported Recent use of antibiotics not reported. Last syphilis testing not reported. Previous syphilis treatment not reported
Methods to control confounding	Moderate risk ++	Other potential exposures to syphilis not reported (i.e. COB, vertical transmission)
Statistical methods	NR	Not reported, Sample size = 224

Conflict of interest	NR	Not reported
Lister, 2005(33)		
Methods for selection of participants	Moderate risk ++	Participants recruited from 4 SOPVs. Convenience sample or booked appointments. Serviced by Health care workers. Participants were actively recruited promotion onsite only during recruitment (business sized cards), 'occasional' advertising in gay press No client incentives Pt medical/sexual history collected Client registration required
Methods for measuring exposure and outcome variables	Moderate risk ++	Sexual history collected Recent use of antibiotics not reported. ('treatment' for sexual health was reported) Last STI testing not reported Client collected ano-rectal sample, nurse collected oro-pharyngeal swab Promotional Business sized cards used from march 2003 only (programme commenced Oct. 2002)
Methods to control confounding	Moderate risk ++	participants who recently accessed care for sexual health reported
Statistical methods	Moderate risk ++	Sample size 55
Conflict of interest	+	reported
Currie, 2006(38)		
Methods for selection of participants	Moderate risk ++	2 retrospective data audits of screening at multiple sites including 1 SOPV: 1)6/2001-9/2003 + 2)9/2003/2-4/2004 SOPV screening times and regularity not reported Staff type not reported Screening methodology was not given, unclear if consecutive clients were recruited Recruitment not reported promotional posters for audit 2 only Clients registration not reported No inclusion or exclusion criteria were provided. Incentives not reported
Methods for measuring exposure and outcome variables	Moderate risk ++	Audit 2: screening of oro-pharynx, urine and ano-rectum offered regardless of risk Unclear if all testing offered in audit 1. ano-rectal specimens pt or clinician collected. Oro-pharyngeal specimen collection not reported. Recent use of antibiotics not reported. Last STI testing not reported. SOPV only data available for chlamydia infection only. Pt medical/sexual collected not reported Unclear if patrons participated on only 1 occasion; or at only 1 site
Methods to control confounding	NR	Not reported
Statistical methods	NR	Not reported, Sample size from SOPV only unreported: amalgamated data reported.
Conflict of interest	+	reported

Sturrock, 2007(39)		
Methods for selection of participants	Moderate risk ++	Retrospective data audit of screening at multiple sites including 1 SOPV. Convenience sample. Serviced by Health workers. No inclusion or exclusion criteria were provided. Incentives not reported Screening methodology was not given, unclear if consecutive clients were recruited Recruitment method not reported
Methods for measuring exposure and outcome variables	Moderate risk ++	Recent use of antibiotics not reported. Last STI testing not reported Specimen collection pt vs staff not reported Unclear if all pts offered all tests Medical/sexual history collected
Methods to control confounding	NR	Unclear if participants were symptomatic Not reported
Statistical methods	Moderate risk ++	Small sample size
Conflict of interest	+	reported
Birrell, 2010(35)		
Methods for selection of participants	Low risk +	anonymous surveillance convenience sample of HIV screening at multiple sites including 4 SOPVs Serviced by community outreach workers No inclusion or exclusion criteria were provided. Incentives not reported Participants were actively recruited ' <i>patrons at each venue were approached by the outreach workers who walked through the venue and invited people to participate in the study</i> ' Promotion 1 week prior and during recruitment Results available on request only Incentives not reported
Methods for measuring exposure and outcome variables	Moderate risk ++ Moderate risk	Oral HIV testing via EIA and confirmed on western blot Medical/sexual history collected
Methods to control confounding	Moderate risk ++	Unclear if participants were symptomatic Unclear if patrons participated on only 1 occasion; or at only 1 site
Statistical methods	Moderate risk ++	Sample size n=465
Conflict of interest	+	reported
Pedrana, 2012(37)		
Methods for selection of participants	Low risk +	anonymous surveillance convenience sample of HIV screening at multiple sites including 4 SOPVs Promotion via social marketing, details not reported

		Serviced by trained field workers Inclusion criteria: >18, MSM last 5 years, verbal consent. I Incentives not reported Results not provided
Methods for measuring exposure and outcome variables	Moderate risk ++	Oral HIV testing via EIA and confirmed on western blot Medical/sexual history collected
Methods to control confounding	Moderate risk ++	Unclear if participants were symptomatic Unclear if patrons participated on only 1 occasion; or at only 1 site
Statistical methods	Moderate risk ++	n=364
Conflict of interest	+	reported
Bennett, 2016(31)		
Methods for selection of participants	High risk +++	Non-staffed, computer assisted self interview (CASI)- English self selected screening available all SOPV hours Promotion via posters, locker magnets and announcements and peer educators (ad hoc basis) No exclusion criteria. Incentives not reported
Methods for measuring exposure and outcome variables	Moderate risk ++	All specimens clients collected Clients controlled screening choice- no health advice provided Recent use of antibiotics not reported. Last STI screen not reported
Methods to control confounding	Moderate risk ++	Medical/sexual history collected via CASI unknown if participants were symptomatic discussed importance of pt awareness of service and level of comfort with CASI model Unclear if clients tested >1 time
Statistical methods	Moderate risk ++	Sample size 402
Conflict of interest	+	Reported
Currie 2011/Del Rosario 2011/Del Rosario 2013(28–30)		
Methods for selection of participants	Moderate risk ++	Amalgamated Retrospective data audit of screening at multiple sites including 1 SOPV. Serviced by Health workers. No inclusion or exclusion criteria were provided. Incentives not reported Screening methodology was not given, unclear if consecutive clients were recruited Recruitment method not reported
Methods for measuring exposure and outcome variables	Moderate risk ++	Recent use of antibiotics not reported. Last STI testing not reported Specimen collection pt vs staff not reported

		Unclear if all pts offered all tests Medical/sexual history not reported
Methods to control confounding	NR	Not reported
Statistical methods	NR	Not reported
Conflict of interest	NR	Not reported
Holt, 2015(36)		
Methods for selection of participants	Low risk +	convenience sample of HIV screening at multiple sites including SOPVs nationally Serviced by trained field workers Inclusion criteria: >18, MSM last 5 years Incentives not reported Anonymous, however participant details collected if participant wanted their result
Methods for measuring exposure and outcome variables	Moderate risk ++	Oral HIV testing via EIA and confirmed on western blot Medical/sexual history collected
Methods to control confounding	low risk ++	Unclear if participants were symptomatic Unclear if patrons participated on only 1 occasion; or at only 1 site Controlled fro recruitment, location, sexual practices, demographics, HIV testing history, self reported HIV status and drug use.
Statistical methods	Moderate risk ++	Sample size: SOPV data amalgamated with recruitment from 'gay bar' = 1136
Conflict of interest	+	reported
Ooi, 2016(34)		
Methods for selection of participants	Moderate risk ++	Participants recruited from 1 SOPVs. Convenience sample, consecutive clients were recruited. Serviced by 1 Health worker and 1 peer worker Participants were actively recruited promotion only during recruitment times symptomatic clients excluded. Incentives not reported Sexual history collected
Methods for measuring exposure and outcome variables	Moderate risk ++	all testing offered to each person Recent use of antibiotics not reported. Client collected ano-rectal sample, nurse collected oro-pharyngeal swab
Methods to control confounding*	++	asymptomatic tested only. Clients first visit only.
Statistical methods	NR	Sample size=55
Conflict of interest	NR	Not reported