

Risk factors for oropharyngeal gonorrhoea in men who have sex with men: An age-matched case-control study.

Vincent Cornelisse, Sandra Walker, Tiffany Phillips, Jane Hocking,
Catriona Bradshaw, David Lewis, Garrett Prestage, Andrew
Grulich, Christopher Fairley, Eric Chow



Background

- Case reports suggested tongue kissing may be a risk factor for oro-pharyngeal gonorrhoea. (Bro-Jorgensen & Jensen, 1973; Willmott 1974)
- However, the Health in Men (HIM) study did not find kissing to be a risk factor. (Templeton et al, 2010)
- But their analysis was adjusted for age, and young MSM both kiss more frequently and are more likely to have oropharyngeal gonorrhoea. Hence adjusting for age may have obscured an association between kissing and oropharyngeal gonorrhoea.



Aims

- To assess associations between oropharyngeal gonorrhoea and oral practices such as tongue kissing, insertive oro-anal sex and receptive oro-penile sex.
- To assess whether regular use of mouthwash was protective against oropharyngeal gonorrhoea.



Methods

- Age-matched 1:2 case-control study of MSM who attended MSHC.
- Study period 1st March 2015 to 30th September 2015.
- Inclusion: age 16-80, MSM, had oro-pharyngeal NAAT swab for *N.gonorrhoeae*.
- Cases: Positive for oropharyngeal gonorrhoea
- Controls: Negative for oropharyngeal gonorrhoea

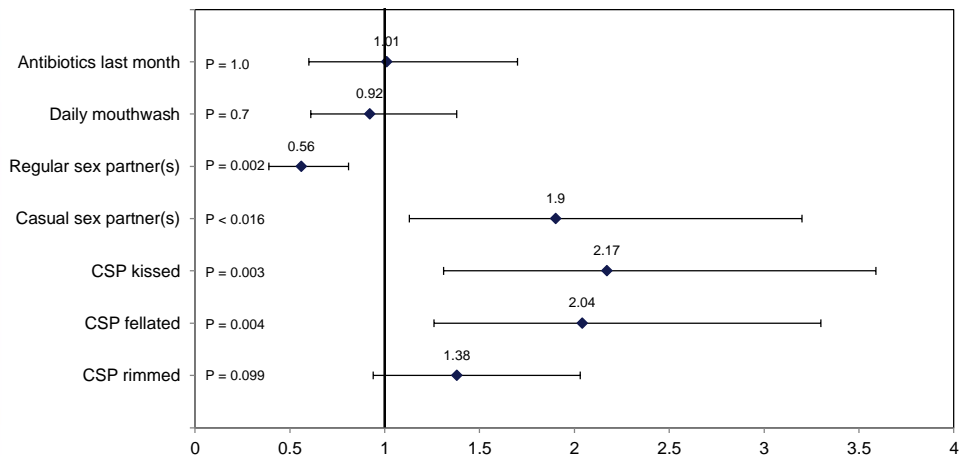


Participants

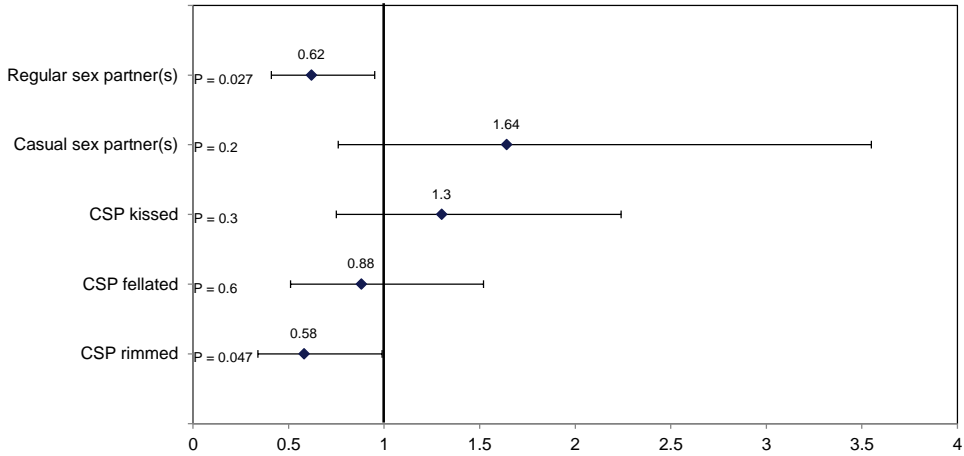
- 1150 MSM invited to participate
- 989 (86%) completed the questionnaire
- 177 cases identified, matched to 354 controls
- Median age 29 years (IQR 25 to 34)



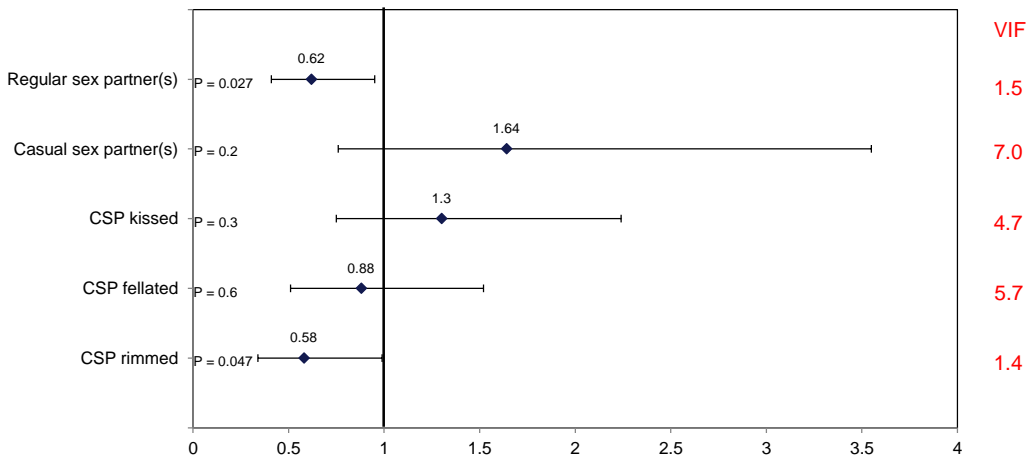
Univariate associations



Multivariate associations



Multivariate associations



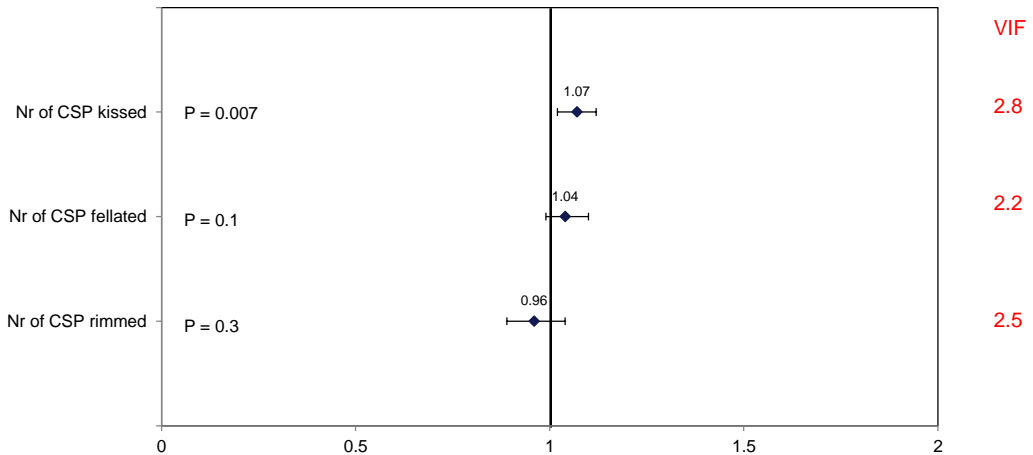
Spearman's rank correlation

	Nr of RSP	Nr of CSP	Kissing CSP	Rimming CSP	Oral CSP
Nr of RSP	1				
Nr of CSP	$r_s = -0.22$ $p < 0.001$	1			
Kissing CSP	$r_s = -0.22$ $p < 0.001$	$r_s = 0.91$ $p < 0.001$	1		
Rimming CSP	$r_s = -0.10$ $P = 0.03$	$r_s = 0.61$ $p < 0.001$	$r_s = 0.64$ $p < 0.001$	1	
Oral CSP	$r_s = -0.16$ $P < 0.001$	$r_s = 0.88$ $p < 0.001$	$r_s = 0.87$ $p < 0.001$	$r_s = 0.65$ $p < 0.001$	1

Nr = Number; RSP = Regular sex partners; CSP = Casual sex partners; Rimming CSP = Number of CSP for insertive oro-anal sex; Oral CSP = Number of CSP for receptive oro-penile sex (with or without ejaculation); Kissing CSP = number of CSP for tongue kissing.



Limited multivariate analysis



Conclusions

- In univariate analysis, compared to controls, men with oro-pharyngeal gonorrhoea were twice as likely to have casual sexual partners.
- In univariate analysis, compared to controls, men with oro-pharyngeal gonorrhoea were twice as likely to have kissed and to have fellated CSP.
- Due to concurrency of practices we were unable to determine independent contributions of kissing and oral sex practices to the risk of oro-pharyngeal gonorrhoea, but kissing appeared to be the strongest contributor to risk.



Acknowledgements

- Supervisors: Kit Fairley, Eric Chow
- Research staff at the MSHC
- Research Training Program of the Australian Government's Department of Education and Training



Univariate associations

	Controls (N=354)	Cases (N=177)	Crude OR	(95% CI)	p value
Age in years (median, IQR)	29 (25 to 34)	29 (25 to 34)			0.995
Antibiotic use in the last month					
No	287 (84.7%)	140 (83.8%)	ref		
Yes	52 (15.3%)	27 (16.2%)	1.01	(0.60 to 1.70)	0.965
Frequency of mouthwash use					
Less than daily	244 (69.1%)	125 (71.0%)	ref		
Daily	109 (30.9%)	51 (29.0%)	0.92	(0.61 to 1.38)	0.682
Regular sex partner(s)					
No	141 (40.2%)	95 (54.3%)	Ref		
Yes	210 (59.8%)	80 (45.7%)	0.56	(0.39 to 0.81)	0.002



Univariate associations - CSP

	Controls (N=354)	Cases (N=177)	Crude OR	(95% CI)	p value
CSP					
No	71 (20.7%)	21 (12.1%)	ref		
Yes	272 (79.3%)	153 (87.9%)	1.90	(1.13 to 3.20)	0.016
Nr of CSP (median, IQR)	3 (1 to 6)	5 (2 to 10)	1.06	(1.03 to 1.09)	< 0.001
CSP tongue kissed					
No	84 (24.7%)	23 (13.3%)	Ref		
Yes	256 (75.3%)	150 (86.7%)	2.17	(1.31 to 3.59)	0.003
Nr of CSP tongue kissed (median, IQR)	2.5 (1 to 5)	4 (2 to 8)	1.07	(1.03 to 1.10)	< 0.001
CSP for receptive oro-penile sex w/ ejac					
No	185 (54.9%)	78 (45.9%)	Ref		
Yes	152 (45.1%)	92 (54.1%)	1.39	(0.97 to 1.98)	0.074
Nr of CSP for receptive oro-penile sex w/o ejac (median, IQR)	0 (0 to 2)	1 (0 to 3)	1.08	(1.03 to 1.12)	0.001
CSP for receptive oro-penile sex w/o ejac					
No	94 (28.0%)	28 (16.3%)	Ref		
Yes	242 (72.0%)	144 (83.7%)	2.01	(1.27 to 3.20)	0.003
Nr of CSP for receptive oro-penile sex w/o ejac (median, IQR)	2 (0 to 5)	3 (2 to 6)	1.07	(1.03 to 1.10)	< 0.001
CSP for insertive oro-anal sex					
No	157 (46.4%)	69 (39.9%)	Ref		
Yes	181 (53.6%)	104 (60.1%)	1.38	(0.94 to 2.03)	0.099
Nr of CSP for insertive oro-anal sex (median, IQR)	1 (0 to 2)	1 (0 to 3)	1.07	(1.02 to 1.12)	0.009

Multivariate associations

	aOR (95% CI)	p value	VIF
RSP			
No	Ref		
Yes	0.68 (0.44 to 1.05)	0.084	1.23
Nr of CSP	1.05 (0.99 to 1.12)	0.1	8.44
Nr of CSP tongue kissed	1.03 (0.96 to 1.10)	0.5	5.49
Nr of CSP for receptive oro-penile sex with ejaculation	1.03 (0.97 to 1.10)	0.3	2.15
Nr of CSP for receptive oro-penile sex Without ejaculation	0.98 (0.90 to 1.07)	0.7	6.50
Nr of CSP for insertive oro-anal sex	0.95 (0.88 to 1.03)	0.2	2.72



Multivariate associations

	aOR (95% CI)	p value	VIF
Nr of CSP tongue kissed	1.07 (1.02 to 1.12)	0.007	2.79
Nr of CSP for receptive oro-penile sex with ejaculation	1.04 (0.99 to 1.10)	0.1	2.22
Nr of CSP for insertive oro-anal sex	0.96 (0.89 to 1.04)	0.3	2.46

