

Reinfection rates in men who have sex with men for *Chlamydia trachomatis* and *Neisseria gonorrhoeae*: Retrospective cohort study.

T Marinelli^{1*}, E P F Chow^{1,2*}, J Tomnay³, G Fehler¹, C S Bradshaw^{1,2}, M Y Chen^{1,2}, D S Forcey¹, C K Fairley^{1,2}

¹Melbourne Sexual Health Centre, Alfred Health, Carlton 3053, Victoria, Australia

²Central Clinical School, Faculty of Medicine, Nursing and Health Sciences, Monash University, Melbourne 3000, Victoria, Australia

³Centre for Excellence in Rural Sexual Health, Melbourne Medical School, The University of Melbourne, Shepparton 3630, Victoria, Australia

*indicates contributed equally and are joint first authors

BACKGROUND:

Substantial rises in sexually transmitted infections (STI) are occurring among men who have sex with men (MSM) in Australia⁽¹⁾. One of the most effective strategies to control STI is partner notification, and inadequate partner notification may be associated with high rates of reinfection with STI. We hypothesised that if individuals were having sex again with the same individuals from whom they had acquired their initial STI, then the rate of that specific STI in the following months after treatment would be higher than the other STI for which they had largely tested negative. We aimed to investigate (1) the rate of reinfection of gonorrhoea and chlamydia among MSM, and (2) the rate ratio of gonorrhoea and chlamydia among reinfected MSM in comparison with the background incidence (i.e. incidence in the overall clinic).

METHODS:

- A retrospective cohort study was conducted of MSM attending Melbourne Sexual Health Centre (MSHC) between January 1st 2006 and December 31st 2013
- Participants were eligible if they were (i) MSM who had previously had sex with another male; and (ii) tested for gonorrhoea and/or chlamydia on two or more occasions over the study period
- Figure 1 illustrates the procedure of data selection and analysis of the study

RESULTS:

- Amongst the 13,052 MSM, MSHC diagnosed 2,246 cases of chlamydia and 1,638 cases of gonorrhoea, corresponding to a background incidence of 8.5 (95% CI: 8.2-8.9) per 100 person-years for chlamydia and 6.2 (95% CI: 5.9-6.5) per 100 person-years for gonorrhoea (Figure 1)
- 1,573 (70%) of the 2,246 cases of chlamydia and 1052 (64%) of the 1638 cases of gonorrhoea were retested within 10 and 365 days after their diagnosis and treatment
- The rate ratio of chlamydia after an initial infection with chlamydia was 16 times higher than the background incidence in the clinic in the first quarter. The rate ratio of gonorrhoea in the first quarter among these individuals was 7 times higher than the background incidence (Figure 2)
- The rate ratio of gonorrhoea after an initial infection with gonorrhoea was 18 times higher than the background incidence in the clinic in the first quarter. The rate ratio of chlamydia in the first quarter among these individuals was 10 times higher than the background incidence (Figure 3)
- The rate ratio of the rates of gonorrhoea and chlamydia compared to the background incidence become similar after about the first quarter for both those who initially tested positive for chlamydia or gonorrhoea (Figure 2 and 3)
- Of the cases of gonorrhoea and chlamydia who retested as positive within 90 days, 45/68 (66%) and 84/132 (64%) respectively had comments in the clinical notes recommending partner notification

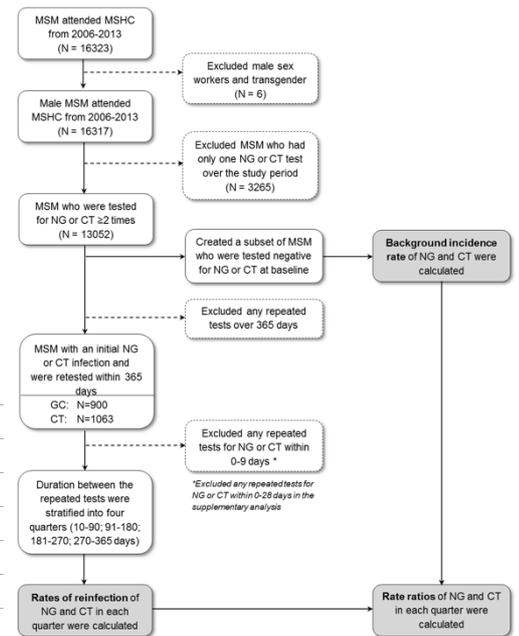


Figure 1

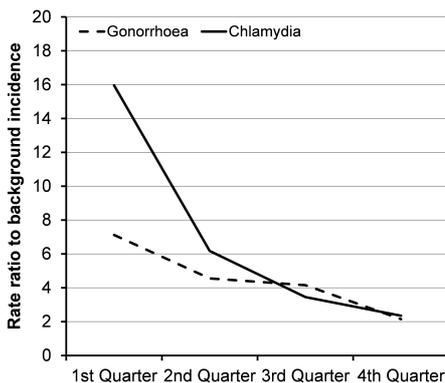


Figure 2

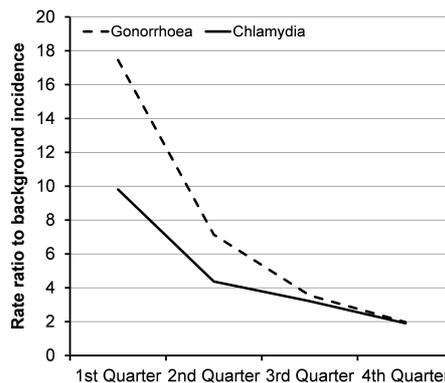


Figure 3

CONCLUSION:

These data suggest that about half of MSM who test positive for chlamydia or gonorrhoea after an initial infection may represent reinfection, the remainder representing the particularly high STI risk of these MSM. Reinfection in this group may be due to sex with the person from whom the initial infection was acquired or someone within the same tight sexual network. There is the potential to change the emphasis of partner notification messages to include the specific mention of the risk of reinfection.

References

1: The Kirby Institute. HIV, viral hepatitis and sexually transmissible infections in Australia Annual Surveillance Report 2012. In: McDonald A, editor. Annual Surveillance Report: The Kirby Institute for infection and immunity in society, the University of New South Wales, 2012.

For more information contact:
Prof Christopher K Fairley
cfairley@mshc.org.au