

PREVALENCE OF MYCOPLAMA GENITALIUM INFECTION IN CONTACTS FOLLOWING A KNOWN EXPOSURE: DATA FROM SOUTH AUSTRALIA 2017- 2024

Authors: MISAN BJ¹, Khaw C^{1,2}

¹Adelaide Sexual Health Centre, Central Adelaide Local Health Network

²School of Medicine, Faculty of Health Science, University of Adelaide

Disclosure of Interest Statement:

The authors are employed at the Adelaide Sexual Health Centre. No grants were received for the development of this study.

BACKGROUND

Adelaide Sexual Health Centre (ASHC) is South Australia’s only public STI clinic. *M. genitalium* infection following sexual contact with a known positive case has not been studied at ASHC. Presumptive treatment for contacts of *M. genitalium* at ASHC has been variable. Understanding the epidemiology of *M. genitalium* in contacts presenting to ASHC could help guide a shared decision-making process when contemplating epidemiological treatment considering antibiotic stewardship and growing antimicrobial resistance.

METHODS

A retrospective study was conducted on clients attending ASHC between 1 January 2017 – 30 June 2024 reporting sexual contact with a *M. genitalium* positive partner. Ethics approval was obtained from the Central Adelaide Local Health Network’s Human Research Ethics Committee (reference number 20365). *M. genitalium* testing was performed by an external laboratory using SpeedX ResistancePlus® MG assay, with macrolide resistance mutation testing from late 2017.

M. genitalium test results, de-identified demographic, behavioural and risk factor information were used in statistical analysis, performed using *jamovi* version 2.6.24.0. Descriptive statistics were produced for demographic, behavioural and risk factors. Independent sample χ^2 test (or fisher-exact test where case numbers <5) was used to test for association between *M. genitalium* and macrolide resistance and behavioural, demographic and risk factors. Binomial testing was used to estimate *M. genitalium* and macrolide resistance prevalence in sexual contacts with sub-group population estimates .

RESULTS

DEMOGRAPHICS:

282 presentations met inclusion criteria for the study: 124 females, 154 males and 4 non-binary/gender queer AMAB (included in the male analysis). 84 (29.8%) MSW, 64 (22.7%) MSM, 10 (3.5%) MSM/W, 109 WSM (38.7%), 15 (5.3%) WSM/W. Median age: 26 years (IQR 22-31), median number of partners in the preceding 3 months: 1 (IQR 1-3).

M. GENITALIUM RESULTS:

Males were tested using urine samples, and women with a genital swab or urine test if swab refused. Males reporting sex with a positive male contact, and women reporting anal sex were offered rectal testing.

- **32% of all the urine/genital testing was *M. genitalium* positive.**
- **46% of all rectal testing was *M. genitalium* positive.**
- **45.5% of rectal swabs from women (n=11) were *M. genitalium* positive**
 - 2/5 (40%) at the rectal site only, 3/5 (60%) with both a positive rectal swab and urine/genital test

INSERTIVE VS RECEPTIVE SITES IN CONTACTS:

- **Insertive and receptive sites demonstrated significantly different prevalence rates** (p<0.001).
 - 20% of insertive sites (male urine) tested were *M. genitalium* positive.
 - 47% of receptive sites (female urine/genital and male and female rectal) tested were *M. genitalium* positive.

M. GENITALIUM IN CONTACT SUB-GROUPS:

- **27% of MSW, 36% of MSM, 40% of MSM/W, 54% of WSM & 13% of WSM/W** contacts were *M. genitalium* positive.
 - Male and female contacts demonstrated significantly different prevalence rates (p=0.003).
 - Prevalence differences between contacts reporting only opposite sex partners versus including same sex partners was not statistically significant (p=0.11).

PREVALENCE ESTIMATES IN THE CONTACT POPULATION:

- *M. genitalium* prevalence in all sexual contacts - 40% (95% CI 34%–45%).
- *M. genitalium* insertive site prevalence in contacts - 20% (95% CI 14%–27%).
- *M. genitalium* receptive site prevalence in contacts - 47% (95% CI 40%–55%).

MACROLIDE RESISTANCE IN CONTACTS:

- **Male contacts showed macrolide resistance in 72% of samples**
 - MSW 58% (n=19), MSM 87% (n=15) and MSM/W 100% (n=2).
- **Female contacts showed macrolide resistance in 75% of samples**
 - WSM 74% (n=34) and 100% in WSM/W (n=2).
- **No difference was found in macrolide resistance between females and males** (prevalence ratio 1.04, p=0.8).
- **Difference between macrolide resistance prevalence in MSW vs. MSM contacts was weakly significant** (prevalence ratio 0.66, p=0.07).
- **Difference between macrolide resistance prevalence in females vs. MSM (p=0.5) and females and MSM at receptive sites (p=0.7) was not significant.**
- Macrolide resistance in contacts **from 2017 – June 2024 was 74% (95% CI 62%–83%).**
- Macrolide resistance in contacts **from 2022 onwards was 85% (95% CI 66%–96%).**

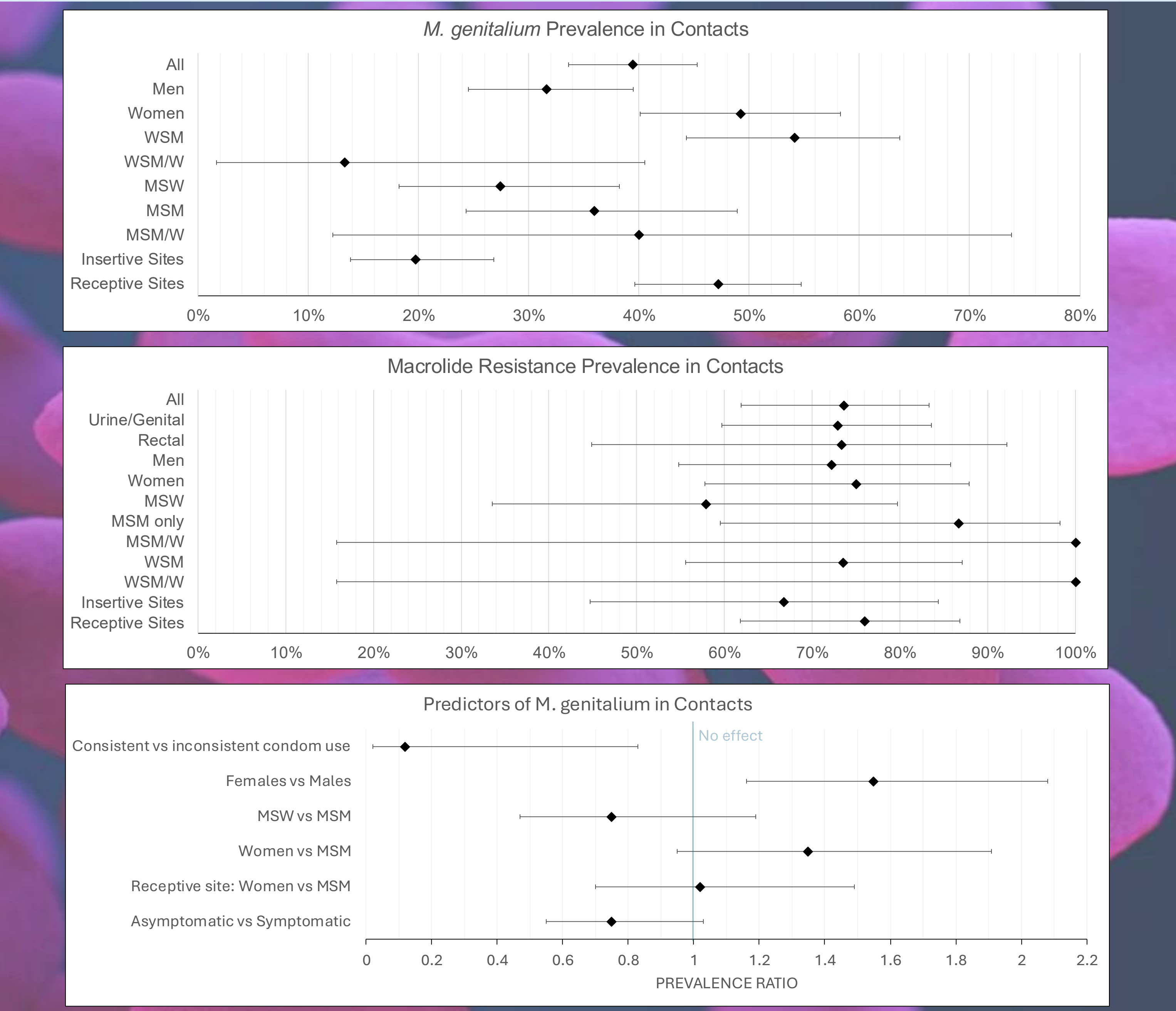
REFERENCES

[1] Slifirski JB, Vodstrcil LA, Fairley CK, Ong JJ, Chow EPF, Chen MY, et al. Mycoplasma genitalium Infection in Adults Reporting Sexual Contact with Infected Partners, Australia, 2008-2016. Emerg Infect Dis. 2017;23(11):1826-33.

[2] Read TRH, Murray GL, Danielewski JA, Fairley CK, Doyle M, Worthington K, et al. Symptoms, Sites, and Significance of Mycoplasma genitalium in Men Who Have Sex with Men. Emerg Infect Dis. 2019;25(4):719-27.

[3] Machalek DA, Tao Y, Shilling H, Jensen JS, Unemo M, Murray G, et al. Prevalence of mutations associated with resistance to macrolides and fluoroquinolones in *Mycoplasma genitalium*: a systematic review and meta-analysis. The Lancet Infectious Diseases. 2020;20(11):1302-14.

[4] Couldwell DL, Jalocon D, Power M, Jeffreys NJ, Chen SC, Lewis DA. Mycoplasma genitalium: high prevalence of resistance to macrolides and frequent anorectal infection in men who have sex with men in western Sydney. Sexually transmitted infections. 2018;94(6):406-10.



DISCUSSION

PREVELANCE:

This study’s findings were concordant with *M. genitalium* prevalence in female and heterosexual male contacts reported in previous research from Melbourne, with data from 2008 – 2016^[1].

- The **similarity in prevalence suggests infectivity rates are similar and static**, despite evidence of increasing antibiotic resistance.

Understanding the epidemiology in the often under studied MSM/W population is important, representing a bridge between opposite and same sex networks where differing prevalence rates for other STIs is well established.

This study estimated the prevalence in MSM/W and WSM/W contacts with noted **limitations:**

- **low sample numbers** contribute to the **imprecision** in the confidence interval for population estimates
- the **retrospective nature** of the study prevented definitive confirmation of the sexual contact (insertive vaginal/anal or receptive anal) with the index case.

PREDICTORS OF POSITIVITY:

Previous Melbourne research found no significant association with symptoms in positive female contacts, but an increased odds in male contacts with urethral symptoms^[1].

- In South Australia there was a **weak association between symptoms and *M. genitalium* positivity** in contacts (p=0.09).
- With most contacts asymptomatic, and only half of symptomatic contacts positive for *M. genitalium*, **this is not a clinically helpful predictor.**
- Notable was an absence of symptoms in people testing positive from the rectal site, aligning with *M. genitalium* found predominantly as asymptomatic rectal carriage^[2].

This study **confirms a significant difference in *M. genitalium* prevalence between female and male contacts** (p=0.003) as has been previously reported^[1].

- In South Australia, the association weakens and the difference in **prevalence falls when comparing women to MSM**; and **falls further with comparison between women and MSM testing from the rectal site.**
- This is considered an important finding, not believed to have been previously reported and **suggests prevalence estimates for contacts derived for insertive and receptive sites could be used ungendered.**

MACROLIDE RESISTANCE:

Australian estimates for macrolide resistance have been reported ~19% (95% CI 10%–26%) pre-2010 to ~66% (95% CI 60%–72%) in 2016 – 2017^[3].

- Macrolide resistance rates in South Australian from 2017 – 2024 **are greater than previous reports**, and **greater still after 2021** following the lifting of most major Covid-19 restrictions.

Macrolide resistance in people with same sex partners is known to be higher^[3,4].

- Confirmed in South Australian for MSM, MSW/M and WSM/W contacts, but the **difference in prevalence from the heterosexual contact population was not statistically significant.**
- This **suggests the division in macrolide resistance between the heterosexual and same sex networks in South Australia is narrowing.**

CONCLUSION

This study provides insight on the epidemiology of *M. genitalium* in sexual contacts of positive partners in South Australia. Growing macrolide resistance in *M. genitalium* and a narrowing divide in resistance between heterosexual and same sex networks in South Australia is shown. This study demonstrates a similar prevalence in contacts comparative to previous studies and provides an ungendered insertive and receptive site prevalence estimate for contacts, not believed to have previously been reported. This evidence-based finding may prove useful when navigating a gender and sexuality inclusive discussion if considering epidemiological treatment in contacts.