

Incidence and risk factors for early syphilis among men who have sex with men attending a sexual health clinic in Australia: a retrospective cohort study

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Introduction

Syphilis affects men who have sex with men (MSM) disproportionately in Australia.

Objective

The aims of our study are to examine:

1. the overall incidence rate of MSM attending a sexual health clinic from 2013 to 2019,
2. the incidence rates stratified by risk factors
3. risk factors of syphilis infection.

Method

- A retrospective cohort study of MSM attending a sexual health clinic in Victoria, Australia during 2013-2019 with at least two syphilis serology tests during the study period.
- The incidence of syphilis was expressed per 100 person-years for each characteristic. Cox's proportional hazards regression analysis was conducted to identify risk factors for syphilis.

Results

Demographics of participants

Consultations: 75,086 (24,391 MSM)

- 1,404 syphilis diagnosis
- Median age: 31 (IQR: 16-39)

Men living with HIV: 1,623 (7%)

Men taking PrEP: 873 (4%)

Men sex with men: 21,167 (86%)

Men sex with men & women: 3,224 (14%)

Past syphilis: 1,465 (6%)

Injecting drug use in last 12 months: 411 (2%)

Injecting drug use >12 months ago: 264 (1%)

Incidence of syphilis

- Incidence of infectious syphilis in MSM between 2013 and 2019 was **3.7 per 100** person-years (Table 1).

Risk factors for syphilis

Risk factors	Adjusted hazard ratio, 95% Confidence interval
Men living with HIV	2.7 [2.3-3.1]
Men taking PrEP	2.1 [1.8-2.5]
Past Syphilis	2.4 [2.0-2.9]
Condomless anal sex	1.7 [1.4-2.1]
>4 sex partners	1.2 [1.0-1.4]
Injecting drug use <12 months	2.7 [2.2-3.4]
Injecting drug use >12 months	1.9 [1.2-3.0]
Concurrent STI: chlamydia	1.6 [1.4-1.8]
Gonorrhoea	1.6 [1.4-1.8]

Figure 1. Forest plot of adjusted hazard ratio by risk factors

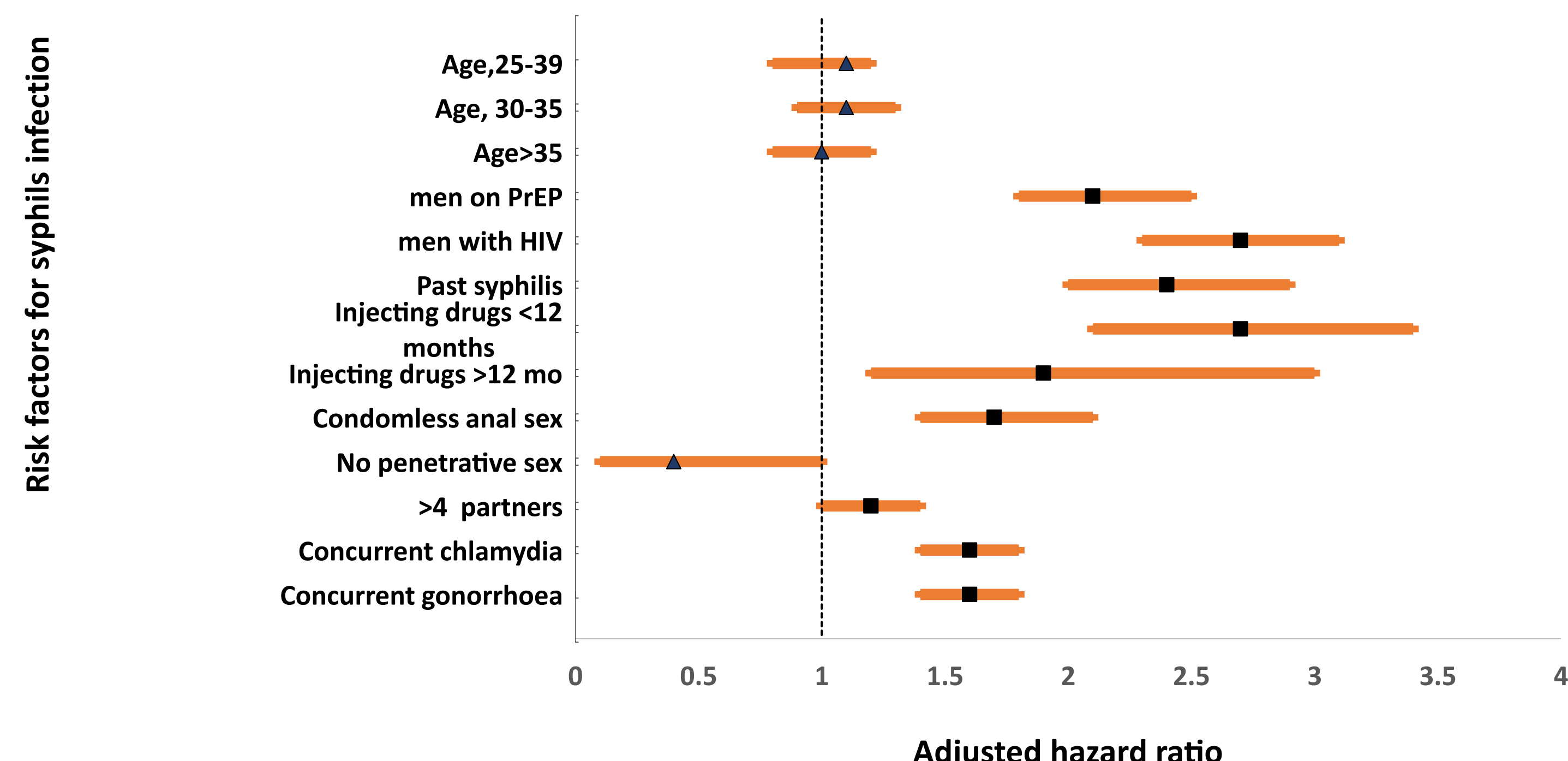


Table 1. Incidence of syphilis by risk factor

Characteristics	Incidence rate (100 person-years) [95% CI]
Total	3.7 [3.5 – 3.9]
Sexual practices in the last 12 months	
Having sex with men only	4.5 [3.7 – 4.1]
Having sex with both men and women	1.5 [1.2 – 1.6]
Age at consultation, years	
<25	2.6 [2.2 – 3.1]
25-29	3.1 [2.8 – 3.5]
30-35	4.0 [3.6 – 4.4]
>35	4.2 [3.9 – 4.5]
HIV and PrEP status	
HIV Positive (Men living with HIV)	9.3 [8.5 – 10.1]
HIV Negative, not taking PrEP	2.2 [2.0 – 2.4]
HIV Negative, taking PrEP	6.9 [6.1 – 7.8]
Past history of syphilis infections	
No	4.2 [3.9 – 4.4]
Yes	7.3 [6.5 – 8.3]
Use of injecting drugs	
Never	2.0 [1.9 – 2.2]
Yes, in the last 12 months	14.3 [11.7 – 17.5]
Yes, more than 12 months ago	5.7 [3.6 – 8.9]
Condom use in the last 12 months for anal sex with men	
Always	1.3 [1.1 – 1.5]
Condomless sex	3.4 [3.1 – 3.7]
No penetrative sex	0.4 [0.2 – 1.2]
Number of male partners in the last 12 months	
≤4	2.0 [1.8 – 2.3]
>4	3.1 [2.9 – 3.4]
Concurrent chlamydia infection	
Negative	3.2 [3.0 – 3.4]
Positive	7.6 [6.7 – 8.6]
Concurrent gonorrhoea infection	
Negative	3.3 [3.1 – 3.5]
Positive	7.2 [6.4 – 8.1]
Concurrent HIV diagnosis	
Negative	3.2 [3.0 – 3.4]
Positive	8.9 [6.5 – 12.2]

Conclusion

- Incidence of syphilis in MSM is higher than general population.
- The control approach should have stronger focus on syphilis control with individualised risk minimisation and population level control guided by risk factors of syphilis.

Contact

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