

SEX WORKERS

The incidence of sexually transmitted infections among frequently screened sex workers in a decriminalised and regulated system in Melbourne

D M Lee, A Binger, J Hocking, C K Fairley

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Objective: To determine the incidence of sexually transmitted infections (STI) among decriminalised and regulated sex workers in Victoria.

Methods: The incidence of STI was calculated for individuals who attended the Melbourne Sexual Health Centre on more than one occasion. Results of initial screen specimens were not included. Follow up time was calculated in person months and used as the denominator with the number of “specified” STIs diagnosed over the study period as the numerator.

Results: Among 388 sex workers the incidence of chlamydia, *Trichomonas vaginalis*, genital warts, and herpes was 0.61, 0.11, 0.79, and 0.17, respectively, per 100 person months of follow up. The mean number of sexual non-paying private partners in the past 3 months was significantly greater among those with chlamydia (0.8 v 1.5, $p < 0.01$) and any STI (0.7 v 1.2, $p < 0.05$).

Conclusion: The incidence of STIs was low among decriminalised and regulated sex work and most infections were related to partners outside of work. Frequent screening of sex workers will reduce the chance of workers passing on an STI but is expensive. However, it may also discourage women from joining the sex work system and push them into an illegal system with a worse outcome.

(definition below).⁶ If they have been recently tested and unknowingly pass on an STI they are protected from prosecution. Testing under the act is defined as monthly examinations to exclude visible warts and active herpes lesions and genital samples for *Chlamydia trachomatis* (CT), *Neisseria gonorrhoeae* (NG), and *Trichomonas vaginalis* (TV) and blood samples for HIV and syphilis in the past 90 days.⁶ Brothel owners require sex workers to obtain a certificate of attendance from the medical practitioner carrying out the testing, so they have evidence that the required testing has been undertaken.⁶ Street sex work is illegal in Victoria.¹

MSHC utilises a relational database electronic medical record (CPMS) to routinely collect a set of demographic, clinical, and epidemiological information on all clients at each clinic visit including number of private non-paying sexual partners, condom use, reason for attendance, and diagnosis.

Data analysis

Analysis was conducted using SPSS v12.⁷ Decriminalised sex workers were defined as sex workers who attended the clinic in order to obtain a certificate of attendance. The data are routinely collected at each visit. We analysed our clinic database to determine the incidence of STIs among sex workers attending the centre for a certificate, surveyed a sample of 47 sex workers attending the clinic to determine their attendance elsewhere for STI screening and, in addition, we audited 40 clinical records to estimate condom use (vaginal and anal sex) with clients at work.

The incidence of STIs was calculated for individuals who attended the MSHC on more than one occasion. The number of “specified” STIs diagnosed over the study period was the numerator excluding any positive results from the first visit. Follow up time was calculated in person months from the first to last test and used as the denominator for CT, NG, and TV. The follow up time for herpes and warts was less because once an individual was infected with these they were censored with respect to further infection with these two organisms. Estimates and their p values for CT, NG, TV, and any STI were calculated using Mann-Whitney test. The confidence intervals for the incidence ratio were calculated using exact methods for binomial proportions.

RESULTS

In 2003, 578 female “decriminalised” sex workers attended the clinic of which 67.1% attended the clinic more than once, giving between 1752 months and 1807 months of follow up. The median interval between visits was 2 months. The incidence of different infections is shown in table 1. The

Abbreviations: CT, *Chlamydia trachomatis*; MSHC, Melbourne Sexual Health Centre; NG, *Neisseria gonorrhoeae*; STI, sexually transmitted infections; TV, *Trichomonas vaginalis*

Sex workers in legalised brothels generally have a low prevalence of sexually transmitted infections (STI) and high levels of condom use.^{1,2} From a public health, and personal safety view, decriminalised systems are also much safer for sex workers, and the vast majority of them are in favour of decriminalisation.³ In the United Kingdom STI rates have been rising rapidly,⁴ but rates among sex workers have not,² even though sex work is criminalised.⁵ We present the first incidence data from within a decriminalised but regulated system that should inform policy and planning if governments were to opt for a decriminalised structure.

METHODS

Study setting

This was a clinical audit of female sex workers attending the Melbourne Sexual Health Centre (MSHC) between 1 January and 31 December 2003. MSHC is Melbourne’s only public sexual health clinic and provides about 25 000 consultations per year. Services are easily accessible and free to the general public with the clinic conveniently and centrally located.

Victoria has decriminalised and regulated sex work legislation. Under the Prostitution Control Act, 1994, Victoria, sex workers (and the brothel owners) may be prosecuted if they knowingly work with an STI or unknowingly have an STI and have not been tested recently

Table 1 Incidence of STIs* among decriminalised sex workers without any private non-paying partners† or with one or more private non-paying partners in the preceding 3 months

	All decriminalised sex workers (n = 388)	Nil partners† in past 3 months (n = 128)	≥ 1 partner† in past 3 months (n = 249)	Rate ratio (95% CI)
Months of follow up (median)	1807 (5.7)	653 (5.8)	1154 (5.7)	
Incidence rate per 100 person months				
<i>C trachomatis</i>	0.61	0.15	0.87	5.8 (0.7 to 45.3)
Trichomoniasis	0.11	0.15	0.09	1.1 (0.1 to 12.4)
Genital warts‡	0.79§	0.61	0.87	1.5 (0.5 to 5.5)
HSV lesion (genital)‡¶	0.17§	0.15	0.17	1.1 (0.1 to 12.5)
Any STIs	1.66	1.07	1.99	1.9 (0.8 to 4.3)

*The defined STIs includes CT, NG, TV, syphilis, HIV, visible genital warts, and incident HSV, initial (primary or first) episode of genital HSV. No incident cases of gonorrhoea, HIV, hepatitis B, and syphilis were found in sex workers.

†Partners are sexual private non-paying partners outside of sex work; not paying clients. Data on private non-paying partners were missing in 10 cases.

‡Months of follow up for genital warts was 1752.16 person months and genital HSV (first episode or primary episode) was 1805.2.

¶HSV incident cases; initial diagnosis of first episode or primary episode of genital HSV but not recurrent cases.

mean number of sexual partners outside of sex work in past 3 months was significantly greater among those with incident chlamydia (0.8 v 1.5, $p < 0.01$) and any STI (0.7 v 1.2, $p < 0.05$) but not different for trichomoniasis, genital warts, or herpes.

Sixteen (34%) of 47 sex workers surveyed had been screened for STIs at another medical practice during 2003. All of the 40 audited histories indicated 100% (95% CI: 91% to 100%) condom use with sex work and three (8%; 95% CI: 2% to 20%) reported condom breakage or slippage at work since their previous visit.

DISCUSSION

This study found that decriminalised regulated sex workers in Melbourne had a low incidence of any STI including *C trachomatis* and that most infections were acquired outside work. To our knowledge, these data are the first published on the incidence of infection among decriminalised sex workers and should be used to inform decisions on the frequencies of testing when setting up a screening system. Because 34% of women had had tests undertaken outside the centre, our estimate may be artificially low by up to this proportion.

The frequency of testing will determine the probability that a sex worker is infected at any given time. By reducing the frequency of testing in Melbourne from 1–3 monthly, the potential infectious period will be trebled. Assuming infections occurs midway between tests, then an infected sex worker will be infectious for 2 weeks with monthly testing compared to 6 weeks with 3 monthly testing.

Using our estimate of the incidence, adjusted for tests outside MSHC (increased by 34%), then we would expect 0.9 positive tests for CT and TV for every 100 tests. This would equate to an increase in infectivity from 1.8 weeks with monthly testing, to 5.4 weeks with 3 monthly testing for every 100 women. The cost of 100 tests would be \$A10 000 assuming \$A100 for consultation and test.⁸ On this basis, it would cost \$A1802 for each week of reduced potential infectivity. The percentage of sex workers who use condoms with any partner—work or private—and the portion that break or slip, will determine how many infections will result during this week. Similar calculations could be done for genital HSV and genital warts but active genital herpes would cause discomfort and make sex work unlikely; the effectiveness of treatment in reducing transmission of warts is not known.

Our study has a number of weaknesses. Firstly, the sex workers in our study may not be representative of all decriminalised sex workers in Melbourne. If they were to have a much lower prevalence, then our study would underestimate the true incidence of infection. However, this seems unlikely as a low prevalence of infection has been reported in other prevalence studies.^{1,2} Secondly, we did not

collect data on the number of total partners, and if the number of outside non-paying partners was correlated with work paying client partners, then our association with non-work partners may be as a result of confounding. Thirdly, our estimate of the rate of infection may be artificially low because it is possible that women who recognised that they had an infection may have sought treatment elsewhere. Notwithstanding these issues, the data are the first incidence data published of a decriminalised sex work system.

Frequent screening of sex workers every month will reduce the chance of decriminalised sex workers passing on an STI to any partners but is expensive. However, it may also discourage women from joining the decriminalised sex work system and push them into an illegal system with a potentially worse overall public health outcome.

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CONTRIBUTORS

All authors critically appraised the manuscript; DL conceived this study, analysed the data, conducted the literature search, audited clinical histories, and drafted the paper; AB coordinated the survey and assisted in appraisal of early drafts; JH assisted in statistical analysis and appraisal of early drafts; CF conceived this study directed and supervised the audit, provided guidance in statistical analysis, and appraised all previous drafts; DL will act as guarantor.

Key messages

- The incidence of sexually transmitted infections is low among sex workers working in a regulated and decriminalised system in Victoria
- STIs among these sex workers are strongly related to non-paying private partners
- Frequent screening of sex workers is expensive and may encourage women to work outside a regulated decriminalised system. The initiative would be to decriminalise sex work

What this study adds

- Provides the first incidence data on sex workers in a legal and regulated system
- In such a system, a significant proportion of STIs are acquired from non-paying private partners

Authors' affiliations

D M Lee, J Hocking, C K Fairley, School of Population Health, Faculty of Medicine, University of Melbourne, Parkville, 3053, Australia

D M Lee, A Binger, J Hocking, C K Fairley, Melbourne Sexual Health Centre, 580 Swanston Street, Carlton, 3053, Australia

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Correspondence to: Professor Christopher K Fairley, Melbourne Sexual Health Centre, 580 Swanston Street, Carlton, Victoria 3050, Australia; cfairley@unimelb.edu.au

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