

Screening for chlamydia in general practice

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OBJECTIVE To determine the prevalence of genital *Chlamydia trachomatis* infection in young patients presenting to general practitioners and to evaluate selective screening, based on risk factors, including gender.

METHODS A cross sectional survey of 508 consecutive patients aged 18–24, presenting to six general practices and one youth clinic in Mackay, North Queensland. We screened urine for chlamydia using Ligase chain reaction.

RESULTS Of 508 samples, 25 were positive (5%). The only factors with increased risks of infection were attendance at a youth clinic and recent change in sexual partner. It was as high in men as in women.

CONCLUSION Prevalence of chlamydia infection may be high enough to support screening of all patients aged 18–24, depending on cost effectiveness studies.

Genital *Chlamydia trachomatis* is the most common curable sexually transmitted infection, with the third highest rate of any notifiable disease, in Australia.¹ It is a cause of significant morbidity, particularly from complications of pelvic inflammatory disease (PID) and subsequent tubal infertility.^{2,3} Notification rates have risen from 54 per 100 000 in 1995 to 88 per 100 000 in 1998,¹ probably representing a real increase in both incidence and prevalence, as well as improved surveillance.⁴ Up to 70% of infected women, and 50% of men, are asymptomatic.⁵ Screening programs reduce the prevalence of chlamydia,⁶ and decrease the incidence of morbidity.⁷ New DNA amplification techniques have made tests for screening less invasive and more

acceptable.⁸

We could find no published data on the prevalence of chlamydia in Australian general practice. In the UK there have been several studies of chlamydia prevalence in a general practice setting with rates reported between 2–12%.⁹

The National Health and Medical Research Council (NH&MRC) has produced consensus guidelines for screening for chlamydia infection in women (Table 1).¹⁰ They were derived from an NH&MRC working party on PID, and do not list age in the absence of other risk factors as a specific indication for chlamydia screening.¹¹

We attempted therefore to measure the prevalence of infection in the city of Mackay, North Queensland, to explore

criteria for selective screening, and to determine whether screening is justified in men as well as women.

Method

Patients aged 18–24 presenting for any reason to 10 general practitioners and a youth clinic in Mackay during June to October 2001 were asked if they would consent to be screened for chlamydia, and given written information regarding the infection and the study. We recorded those who declined. Those who consented in writing were asked to complete a brief written questionnaire of demographic information, on sexual behaviour in the previous 12 months, and any urogenital and gynaecological history. The question-

Table 1. NH&MRC guidelines for screening of women for genital chlamydia infection

Any one of the following:

- any current STI
- partner with STI
- clinical cervicitis or inflammatory changes on Pap smear

OR

Any two of the following:

- age less than 25 years
- more than one sexual partner or a recent change in sexual partner
- use of no contraceptive or non-barrier method or unplanned pregnancy
- cervical ectopy
- patient request

(there are no specific recommendations for men)

naire had been piloted on 40 patients previously at one practice. We used code numbers on questionnaires and test samples to maintain privacy.

We provided GPs with a standard protocol for pre- and post-test counselling, and contact tracing.¹² The test was on 'a first catch' urine sample. If the patient had passed urine within two hours of the consultation they were to be asked to bring a sample back to the practice (and reminded by telephone if they did not). The sensitivity of the Abbot Ligase chain reaction (LCR) assay is reported as 82–96% and 91–95% in female and male urine specimens respectively, and specificity as 100% in both genders.^{13–15}

Patients who tested positive were contacted personally by their GP and asked to attend a follow up appointment, where they were given post-test counselling and treated with azithromycin 1 g orally. One pregnant subject was treated with erythromycin. They were also screened for co-existing sexually transmitted infections where indicated. Contact tracing was undertaken.

Table 2. Age, gender and ethnicity of participants, nonparticipants and the population

	Mean age (years)	Female (%)	Aboriginal, Torres Strait Islander or South Sea Islander n (%)
Recruited	20.8	75	19 (4)
Eligible but not recruited	20.2	70	Not available
All 18–24 year olds living in Mackay ¹¹	21.1	49	934* (16)

* projected from population data

Table 3. Predictors of infection

Risk factor	Prevalence of chlamydia		Significance
	n	(%)	p
Youth clinic attendance	8/65	(12)	<0.01
Age <20	12/165	(7)	<0.1
Two or more partners or recent change in partner	18/203	(9)	<0.01
Left school before year 12	11/120	(9)	<0.05
NH&MRC guidelines applied to women	17/342	(5)	>0.5

Ethical approval

The James Cook University ethics committee reviewed and approved the original proposal for this study (approval no. H118).

Results

A total of 745 eligible patients presented to participating GPs during the study. Of these, 110 were not invited to take part (oversight by the GPs), 52 declined to participate, and 75 failed to return a sample. The remaining 508 represent 8% of 18–24 year olds in Mackay. There was no significant difference between them and the 237 who were not recruited. The Aboriginal and Torres Strait Islander (TSI) and South Sea Islander (SSI) communities were probably under represented (Table 2).

The participating GPs were younger (mean age 34.7) and more predominantly

female (70%) than average for Australian GPs.¹⁶

The overall prevalence of infection was 5% (25 of 508); higher in youth clinic patients (8/65, 12%) than general practice patients (17/443, 4%; $p<0.1$); and slightly higher in men (7/127, 5.5%), than women (18/381, 5%), but this was not significant ($p>0.9$) (Table 3).

The 25 who tested positive were significantly more likely to:

- have attended the youth clinic
- have left school before year 12, and
- have had either a recent change in sexual partner, or two or more sexual partners in the past 12 months (Table 3).

Chlamydia infection was more prevalent in teenagers than 20–24 year olds ($p<0.1$). There were no other potential predictive factors.

Discussion

We must be cautious in generalising these results as this study took place in only one city. Only 7% of the target group declined to participate, much lower than comparable studies in the UK,¹⁷ which may reflect the motivation of the purposively selected GPs in our study.

The under representation of the combined Aboriginal, Torres Strait Islander and South Sea Islander community may reflect under utilisation of health care by indigenous and South Sea Islander populations.¹⁸ It may be attributable to specific Aboriginal and Torres Strait Islander health services in Mackay, which were not included in this study.

The under representation of men may reflect the greater number of female GPs in our study, or the reluctance of young males to access health care. The estimated overall prevalence of 5% was comparable with similar primary care studies in the UK.

Our data suggests that the NH&MRC guidelines do not appear to be helpful. First, restricted as they are to women, had they been applied to this group, seven of the total 25 positive patients would have been missed. We propose screening both men and women.

Second, selective screening based on risk factors is not supported by this study. The sexual history required to apply these guidelines may be inappropriately intimate and stigmatising.¹⁹

Screening for chlamydia seems to satisfy general criteria for any population screening:

- infection is common, and usually asymptomatic
- if untreated, infection causes significant morbidity
- acceptable and effective diagnostic tests are now available, and
- acceptable and effective treatments are available.²⁰

The cost of diagnosis and treatment of chlamydia should be balanced against the

benefits in terms of decreased morbidity from PID, neonatal infections and infertility. Economic studies overseas have suggested that screening for chlamydia becomes cost effective at a prevalence of 6% or more.²¹ However, some recent Australian work suggests cost effectiveness at a prevalence of 2.1%.²²

Although we need more data to determine whether the prevalence is similar elsewhere, and to agree on the prevalence required for cost effectiveness it seems that screening all patients age 18–24 years may be justified.

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Implications of this study for general practice

- Screening 18-24 year olds for chlamydia in general practice is feasible.
- Teenagers, youth clinic patients and patients with a recent change in sexual partner were at increased risk of infection.
- Evidence supports screening men as well as women.
- Screening may be justified depending on different estimates of the cost effective break point prevalence.

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