Two years of enhanced surveillance of sexually-transmitted chlamydia in South East Queensland

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Abstract

The *National Sexually Transmissible Infections Strategy 2005–2008,* released in 2005, lists exploring and addressing barriers to enhanced data collection for chlamydia surveillance among the actions required for chlamydia control and prevention. This study describes a method of enhanced surveillance of sexually transmitted chlamydia notifications undertaken in South East Queensland, and the epidemiology and management of chlamydia over the study period. The service providers of a random sample of chlamydia notifications meeting preset inclusion criteria were faxed an information package and questionnaire. Telephone follow-up was initiated for non-responders. The first year of data were compared to the second year of data. The overall response rate was 93.2 per cent. Males were more likely than females to be tested because of symptoms in the first year of the study, but not the second. Females were 5.2 times (95% CI 2.43, 10.91) more likely to be screened on the suggestion of the service provider than males. The positivity rate among those tested for sexually transmitted chlamydia increased across the study period. An information package and questionnaire faxed to notifying clinicians is a simple and effective means of conducting enhanced surveillance of sexually transmitted chlamydia. An increase in the screening of males may be contributing to the increasing rate of notifications. An increasing positivity rate among all those tested for chlamydia may be due to more prevalent disease, or more focused testing of high risk groups. *Commun Dis Intell* 2006;30:456–461.

Keywords: Chlamydia, *sexually transmissible infections*

Introduction

Chlamydia is the most frequently notified infection in Australia, at a rate of approximately 180 notifications per 100,000 population in 2004,[1] increased from 152 notifications per 100,000 population in 2003.[2] In addition, the significant potential complications of infection for both women and men clearly demonstrate it as a disease of public health importance.

The *National Sexually Transmissible Infections Strategy 2005–2008,*[1] and the announcement of funding for a pilot screening program for chlamydia targeted at women aged 18–30 years[3] are key developments in chlamydia control in Australia. The former listed exploring and addressing barriers to enhanced data collection for chlamydia surveillance among the actions for chlamydia control and prevention. In this paper, we describe a simple method of enhanced surveillance that achieved a good response rate enabling us to explore the epidemiology and management of sexually transmitted chlamydia notifications in the jurisdiction of Southern Area Population Health Services – Brisbane Southside (SAPHS – BS) in South East Queensland (Figure), with an estimated resident population of 988,584 as at 30 June 2004.[4]

Methods

All notifications of *Chlamydia trachomatis* to SAPHS – BS between 1 February 2003 and 31 January 2005, were assessed against inclusion/exclusion criteria. The criteria were: the notification must occur within the study period; the residential address of the case must fall within the SAPHS – BS area or where no residential address is listed, the health service provider must operate within the SAPHS – BS area; and infections of the eye were excluded.

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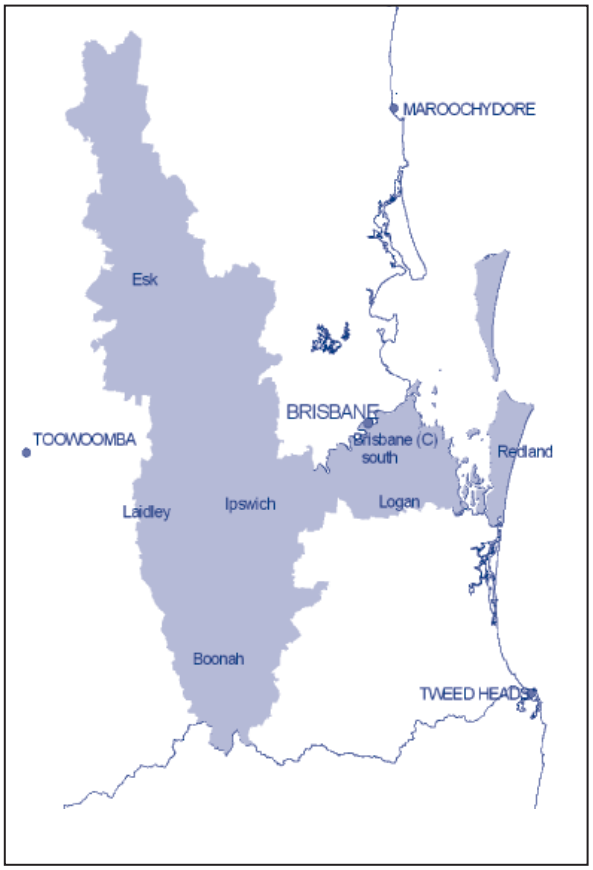
Using a random number table, one out of every 10 eligible notifications was chosen for inclusion in the study and assigned a code. After the case's assigned code was communicated to the health service, the clinician who ordered the investigation was faxed an information package and one page de-identified questionnaire. The information package was developed with Princess Alexandra Sexual Health (PASH) based on a package used for gonorrhoea enhanced surveillance that was shown to improve clinician management practices in a local before-and-after study.[5] It included a patient information sheet, a contact tracing letter pro forma, and guidelines for the management of uncomplicated chlamydia. The questionnaire collected demographics; the reason for testing; sites tested; treatment; investigation for other sexually transmitted infections; contact tracing; and the suspected source of infection.

Figure. The geographical area covered by Southern Area Population Health Services – Brisbane Southside



Four weeks were allowed for the return of the questionnaire by fax or post from the clinician. Up to three reminder phone calls were then made at approximately fortnightly intervals to the health service.

Data were analysed using SPSS for Windows version 11.5 and Epi Info 6. The notifications from the first year of the study (1 February 2003 to 31 January 2004 – period 1) were compared to the notifications from the second year of the study (1 February 2004 to 31 January 2005 – period 2) using the chi-squared test of significance or Mantel-Haenzel test where appropriate. This time comparison served to highlight any possible trends.

The study sample was compared to all notifications meeting inclusion/exclusion criteria, recorded in the Notifiable Conditions (NOCS) database for each study period. Hospital and private laboratories servicing the SAPHS -BS area were asked to provide the total number of requests received for urogenital Chlamydia testing and the number of positive tests, using the same inclusion/exclusion criteria as the study.

This study of the epidemiology of a notifiable disease was undertaken under the provisions of the *Queensland Health Act 1937.*

Results

The response rate was 93.2 per cent (289 case report forms received out of 310).

The demographics of the cases for the two periods of the study approximated those of all 'genital' and 'unspecified' chlamydia notifications to the SAPHS –BS for the study period (Table 1). The proportion of females aged 18 to 30 years (the target group for the national pilot screening program) was similar over the two periods (71% and 77% of females for periods 1 and 2 respectively; p=0.41). This group accounted for 43 per cent and 47 per cent of all notifications for periods 1 and 2 respectively.

The male:female ratio did not change during the study. Six per cent of cases were identified as Indigenous in both study periods, while Indigenous status was either unknown or not answered in 22 per cent of cases in period 1 and 28 per cent of cases in period 2. For both study periods, 86 per cent of cases were known to speak English at home, approximately one per cent of cases were identified as working in the sex industry, and approximately four per cent of women were pregnant at the time of investigation for chlamydia.

The reasons for testing over the two study periods are given in Table 2. There was no change across the study in the proportion of cases tested because of symptoms (p=0.22). However, males were more likely than females to be tested because of symptoms in period 1 (p=0.005), but not period 2 (p=0.43). Urethral discharge or dysuria was the most common

Table 1. Comparability of all chlamydia notifications to SAPHS – BS meeting the study criteria and the study sample notifications

Period 1	All notifications	Study sample
Number	1,328	126 (incl. 9 non responders)
Age range (years)	13–64	14–62
Median age (years)	22	22
Males (%)	38	40
Females (%)	62	60
Identified as Indigenous (%)	6	6
Co-infected with gonorrhoea (%)	2	2
Period 2	**All notifications**	**Study sample**
Number	1,812	184 (incl. 12 non responders)
Age range (years)	6–70	14–53
Median age (years)	22	23
Males (%)	37	39
Females (%)	63	61
Identified as Indigenous (%)	5	6
Co-infected with gonorrhoea (%)	1	1

Table 2. The proportion of the sample giving particular reasons for testing for chlamydia*

Reason for testing	Period 1						Period 2					
	All		Males		Females		All		Males		Females	
	%	n	%	n	%	n	%	n	%	n	%	n
Contact with chlamydia infection	16	19	21	10	13	9	23	39	28	19	20	20
Screening test requested by patient	20	23	15	7	23	16	18	30	25	17	13	13
Screening test suggested by doctor	18	21	4	2	27	19	24	40	7	5	34	35
Antenatal screening test	3	3	–	–	4	3	0	0	–	–	0	0
Symptomatic	41	49	58	27	32	22	34	59	38	26	32	33
Other	2	2	2	1	1	1	1	2	2	1	1	1
Total	100	117	100	47	100	70	100	170	100	68	100	102

* Excludes 2 cases in period 2 for whom the reason for testing was not given.

symptom for males for both time periods, whereas no particular symptom was dominant among females (data not shown).

Females were 5.2 times (95% CI 2.43, 10.91) more likely to be screened on the suggestion of the service provider than males. A greater proportion of both males and females appeared to be tested because of contact with someone found to have chlamydia in period 2 compared to period 1, but the difference was not statistically significant (p=0.42 for males and p=0.25 for females).

The reason for attendance was not associated with age group for either period (p=0.06 and p=0.76 respectively).

The specimens most commonly collected in both periods were cervical or vaginal swabs and urine samples. Approximately 6 per cent of diagnoses in each period were made from swabs of the urethra or rectum. Sixty-three per cent and 62 per cent of the cases had positive urinary polymerase chain reaction results in periods 1 and 2 respectively.

Azithromycin was prescribed as treatment for chlamydia in 80 per cent of cases in period 1 and 69 per cent of cases in period 2 (p=0.09). Fifteen per cent of cases were prescribed doxycycline in period 1 compared to 20 per cent in period 2 (p=0.22). Four per cent of cases in period 1 and 5 per cent of cases in period 2 had a second treatment prescribed: those specified were either azithromycin or doxycycline.

Fifty-six per cent of study cases in period 1, and 69 per cent of study cases in period 2 had testing requested for gonorrhoea (p=0.02). A small proportion tested positive (Table 1), while a further 5 per cent in period 1 and 8 per cent in period 2 had test results pending at the time of enhanced surveillance. Among all chlamydia notifications meeting the study inclusion criteria, 2 per cent in period 1 and 1 per cent in period 2 were also notified for urogenital gonorrhoea within a two month timeframe (Table 1).

There were no significant differences in the proportion of cases tested for each of HIV, hepatitis B, and syphilis between period 1 and period 2. These proportions ranged from 54 per cent to 61 per cent. Seventeen and 18 per cent of cases in periods 1 and 2 respectively had tests requested for hepatitis C. Co-infection was uncommon.

Contact tracing was initiated in 85 per cent of cases in period 1 and 81 per cent of cases in period 2, almost always (94% of these cases) by the cases themselves. In period 1, 88 per cent of cases listed a heterosexual relationship as the likely source of infection, while the gender of the contact was unknown to the service provider in 9 per cent of cases. In period 2, 86 per cent of cases listed a heterosexual relationship as the likely source of infection, and for 13 per cent, the gender of the contact was unknown to the service provider. Seven per cent of cases in period 1, and 2 per cent of cases in period 2 reported that it was likely they had acquired the infection overseas.

Males were 2.3 times (95% CI 1.53, 3.5) as likely as females to have identified a casual partner as the likely source of infection. For the majority of females in both periods (61% and 60%), their regular partner was thought to be the source of infection (vs males RR 1.8 – 95% CI 1.34, 2.37). For 20 per cent and 25 per cent (periods 1 and 2 respectively) of females and 24 per cent and 28 per cent (periods 1 and 2 respectively) of males the most likely source of infection was unknown to the service provider.

There was an increase in the positivity rate of chlamydia tests across the study period for each laboratory, although not all of these were statistically significant (Table 3).

Discussion

A faxed information package and questionnaire to notifying clinicians is a simple and effective means of conducting enhanced surveillance of sexually transmitted chlamydia. Factors that may have contributed to the high response rate included reminder phone calls,[6] the short length of the questionnaire,[7] provision of clinical information with the questionnaire,[8] faxing the questionnaire,[9] and collaboration between population health and a sexual health service. A metropolitan public health unit in New South Wales found that posting questionnaires to notifying service providers, with one posted reminder for non-responders, was also effective, with a response rate of 88 per cent.[10] The Victorian Department of Human Services distributes questionnaires to notifying clinicians via pathology laboratories.[11] The response rate in 2001 was 58 per cent. An earlier study in Victoria achieved an 85 per cent response rate using mainly telephone survey methods with multiple attempts to contact diagnosing providers.[12]

Enhanced surveillance in South East Queensland confirms the public health importance of sexually transmitted chlamydia infection in young adults in this area, and lends support to the target age group

Table 3. Tests requested for urogenital chlamydia, number positive and positivity rate 1 February 2003 to 31 January 2005, by laboratory for the SAPHS – BS area

	Period 1	Period 2	p value
Mater			
Positives	63	104	
Number	1,293	1,603	0.08
% positive	4.9	6.5	
Sullivan Nicolaides Pathology*			
Positives	274	479	
Number	5,473	7,766	0.003
% positive	5.0	6.2	
QML Pathology			
Positives	766	974	
Number	15,156	16,494	0.002
% positive	5.1	5.9	
Queensland Health Pathology and Scientific Services			
Positives	314	300	
Number	4,866	4,160	0.18
% positive	6.5	7.2	
Total†			
Positives	1,495	1,857	
Number	28,347	30,023	<0.001
% positive	5.3	6.2	

* Data given for period 1 is for 1 May 2003 to 31 January 2004 as number of positives for all of period 1 not available.

† Includes calculated data (positivity rate for 1 May 2003 to 31 January 2004 for Sullivan and Nicolaides applied to number of tests requested for all of period 1 for this laboratory to calculate total number and positives).

of the national screening pilot, with over 70 per cent of female notifications in those aged 18 to 30 years.

It is possible that a trend towards increased screening of males is responsible for at least part of the detected increase in chlamydia notifications in South East Queensland, although this requires verification in a longer study. Some of this apparent increase in screening may have been influenced by the information package sent to providers with the enhanced surveillance questionnaire. It is also acknowledged that enhanced surveillance does not account for those who were tested for chlamydia, but had a negative result. Enhanced surveillance of chlamydia notifications between 1997 and 2001 in Victoria also demonstrated a decrease in the proportion of men tested because of symptoms.[11]

Over both periods of the study, providers were more likely to recommend screening to females than males. This practice may account for some of the difference in notification rates between the sexes.

The positivity rate among those tested for sexually transmitted chlamydia increased across the study period. If indicative of a trend, this may indicate more prevalent disease, or more focused testing of high risk groups. A study in New South Wales[13] also found an increase in positivity rate with time, while a Victorian study[14] did not.

The increase in testing for gonorrhoea over the study period, if indicative of a trend, could have been due to a number of factors. These may have included awareness of the availability of gonorrhoea and chlamydia testing on the same specimen, the information package, and patient request.

As the study was limited to two years in length, further investigation into the reasons for the increasing notification rate, and the possible identified trends of increasing positivity and testing for gonorrhoea could be valuable.

While most providers reported that contact tracing was being undertaken, usually by the cases themselves, the effectiveness of that contact tracing was not investigated by this study. Contact tracing has been recognised as an area in need of further research.[1]

The demographic variables examined and the proportions of cases co-infected with gonorrhoea were comparable for the study sample and all chlamydia notifications to SAPHS – BS, suggesting the study methods achieved a representative sample. Thus, surveying the notifying providers of a 10 per cent random sample of notifications may prove a repeatable and cost-effective enhanced surveillance technique for sexually transmitted chlamydia.

As demonstrated by this study, effective enhanced surveillance can provide information on clinicians' investigative and management practices, as well as the epidemiology of chlamydia in the local population. This sort of information could be valuable to focus chlamydia control efforts at a local level.

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