ORIGINAL SCIENTIFIC PAPER

SHORT REPORT

Large increase in opportunistic testing for chlamydia during a pilot project in a primary health organisation

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ABSTRACT

INTRODUCTION: The Auckland chlamydia pilot project was one of three funded by the Ministry of Health to trial implementation of the 2008 *Chlamydia Management Guidelines*. Chlamydia is the most commonly notified sexually transmitted infection in New Zealand.

AIM: To increase opportunistic testing in under-25-year-olds and to improve documentation of partner notification in primary care.

METHODS: A four-month pilot was initiated in Total Healthcare Otara using a nurse-led approach. Laboratory testing data was analysed to assess whether the pilot had any impact on chlamydia testing volumes in the target age-group. Data entered in the practice management system was used to assess follow-up and management of chlamydia cases.

RESULTS: During the pilot there was a 300% increase in the number of chlamydia tests in the target age-group from 812 to 2410 and the number of male tests increased by nearly 500%. Twenty-four percent of people tested were positive for chlamydia, with no significant difference in prevalence by ethnicity. The pilot resulted in better documentation of patient follow-up in the patient management system.

DISCUSSION: There was a large increase in chlamydia testing during the pilot with a high prevalence found in the population tested. Chlamydia remains an important health problem in New Zealand. The cost benefit of increased chlamydia screening at a population level has yet to be established.

KEYWORDS: Chlamydia; notification, partner; pilot project; prevalence; primary health care

Introduction

The Auckland chlamydia pilot was one of three pilots funded by the Ministry of Health to trial implementation of the 2008 *Chlamydia Management Guidelines*.[1] Chlamydia is the most commonly notified sexually transmitted infection (STI) in New Zealand[2] and can result in significant adverse sequelae including peri-hepatitis and pelvic inflammatory disease (PID).[3–5] Environmental Science and Research services (ESR) laboratory surveillance data indicate that over 70% of chlamydia cases are diagnosed in those aged under 25 years and rates of diagnosis are higher in those of Maori and Pacific ethnicity.[2] The ESR data also indicate disproportionate numbers of chlamydia cases are diagnosed in females. Data from the Waikato pilot confirmed a lower test uptake in males.[6]

The Auckland pilot had multiple aims and objectives. This paper describes outcomes of two aims: firstly, to increase opportunistic testing for chlamydia in those aged under 25 years (particularly males) and, secondly, to improve documentation of follow-up and partner notification of diagnosed cases. As previous research has indicated that nurse-led opportunistic testing is very successful at increasing chlamydia testing rates,[7] we opted to utilise this approach.

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Table 1. Chlamydia testing: laboratory data

	Pre-pilot					Pilot				
	All N (%)	Male n (%)	Female n (%)	Age 14–19 n (%)	Age 20–24 n (%)	All N (%)	Male n (%)	Female n (%)	Age 14–19 n (%)	Age 20–24 n (%)
Total no. tests	812 (100)	144 (17.7)	668 (82.3)	281 (34.6)	509 (62.7)	2410 (100)	695 (28.8)	1715 (71.2)	916 (38.0)	1466 (60.8)
No. individuals tested	760 (93.6)	130 (90.3)	630 (94.3)	254 (90.4)	484 (95.1)	2157 (89.5)	658 (94.7)	1499 (87.4)	815 (89.0)	1315 (89.7)
No. positive tests	194 (23.9)	59 (41.0)	135 (20.2)	83 (32.7)	109 (22.5)	618 (76.1)	155 (21.3)	370 (22.0)	251 (30.8)	262 (19.9)
% individuals positive*	25.5	45.4	21.4	32.7	22.5	24.3	23.6	24.7	30.8	19.9

* After exclusion of duplicates.

Methods

A South Auckland primary care setting was chosen for the pilot because of the youthful population demographics and the relatively high proportion of young Maori and Pacific people in the region. Total Healthcare Otara (THO) agreed to implement a four-month pilot project in their 10 primary care practices. The limited time period was imposed due to Ministry of Health time constraints.

Chlamydia testing in primary care is already known to be acceptable and to be regarded positively by young people if given in the right environment.

THO operates by a nurse-triage process and during the pilot period a chlamydia test was to be offered by the nurses to all sexually active under-25-year-olds, using criteria recommended in the chlamydia management guidelines. If consent was given, males provided a first-pass urine specimen and females obtained a self-collected vaginal swab for testing. Laminated instruction cards were provided to explain how to collect their vaginal sample.

All patients testing positive for chlamydia were to be recalled by a registered nurse for treatment and to discuss partner notification. It was recommended that all cases should receive a follow-up telephone call one week after treatment to check whether there had been any risk of re-infection, to check whether sexual contacts had been notified and to offer a repeat chlamydia test in three months' time.

Laboratory testing data was obtained from the community laboratory. A reference sample of data from a four-month period 12 months prior to the introduction of the pilot (pre-pilot period) and a second set of chlamydia testing data during the pilot implementation period (pilot period) was requested for all tests processed in the target age group. The laboratory data included age and gender, but not ethnicity. During the pilot period, ethnicity data was extracted from the practice management system (PMS); THO had introduced a new MedTech32 template to the PMS specifically for the pilot.

A positive chlamydia test was only counted once if there was more than one positive test for an individual within a one-month period (as PCR tests can remain positive for several weeks after treatment) and individuals were counted only once if they were re-tested within a one-month period. There was some contamination of the laboratory data, as the reports also contained data from three practices in the same region not included in the pilot because they used the same laboratory reference code.

Statistical analysis

The two-proportion z-score test was used to determine whether observed differences between

the pre-pilot and pilot data were significant. Probability values were calculated from the z-scores using a normal distribution calculator and a significance level of 0.05 was used.

Ethical approval was obtained for the project from the Northern Regional Ethics Committee (Ref. NTX/10/EXP/169). The pilot project implementation commenced 6 December 2010 and finished 31 March 2011.

Results

During the pre-pilot period, THO provided consultations to 2746 patients in the target age group and 812 chlamydia tests were processed by the laboratory, which corresponded to 760 individuals after exclusion of duplicates. Table 1 shows the laboratory testing data. As noted in the methods section, some of these individuals would have been tested outside of the pilot setting. The majority of chlamydia tests were requested in females (82%) and, overall, 26% of individuals tested were positive. The percentage of positive tests in males was nearly double that of females. Males and females in the 14- to 19-year age group tested positive more frequently than those in the 20- to 24-year age group, but this difference was only significant for females (p=0.006).

During the pilot period, data from the PMS indicated that 3687 patients in the target age group were triaged by THO and 1715 of these patients (46%) were tested for chlamydia. The numbers of chlamydia tests processed by the laboratory increased dramatically from 812 tests to 2410 (just over 300%) and the number of male tests increased by nearly 500%, from 144 to 695 tests. The proportion of male tests increased from 18% to 29% of total tests. The PMS data revealed that a similar proportion of males (47%) and females (45%) presenting to THO during the pilot period were tested for chlamydia. Overall, 24% of people tested were positive which was similar to the pre-pilot period. The test positivity rate in males, however, declined considerably from pre-pilot levels (p<0.001).

The ethnic distribution of registered THO patients in the target age group during the pilot was predominantly Pacific (57%), followed by NZ Maori (18%), European (includes NZ and other European; 7%), Asian (6%), and Others (4%), with ethnicity data missing for 8%. Ethnicity data is shown in Table 2. Chlamydia test positivity was highest in those of Pacific ethnicity (19%), but this was not significantly higher than for NZ Maori (p=0.35), European (p=0.28), or those of Other ethnicity (p=0.89). Test positivity in Asians, however, was significantly lower than all other ethnicities (p=0.01).

Laboratory specimen data is shown in Table 3. There was a shift in practice during the pilot period to the offering of self-collected vaginal swabs to females for opportunistic testing rather

WHAT GAP THIS FILLS

What we already know: Chlamydia is the commonest sexually transmitted infection notified in New Zealand. Opportunistic testing is recommended in the under-25-year-old age group. However, test uptake in males is much lower than females in primary health care settings.

What this study adds: Nurse-led opportunistic testing for chlamydia in primary health care is successful at increasing testing in both males and females. It is possible to improve documentation of partner notification in primary health care, but further research is needed in this area.

Table 2. Chlamydia testing: ethnicity data

	Pacific n (%)	NZ Maori n (%)	Asian n (%)	European n (%)	Other n (%)	Missing n (%)	Total N (%)
Assessments	2117 (57)	649 (18)	212 (6)	274 (7)	150 (4)	285 (8)	3687 (100)
Total tests	1062 (62)	396 (23)	45 (3)	114 (7)	35 (2)	63 (3)	1715 (100)
Female tests	669 (60)	283 (25)	28 (2)	92 (8)	22 (2)	30 (3)	1124 (66)
Male tests	393 (66)	113 (19)	17 (3)	22 (4)	13 (2)	33 (6)	591 (34)
Positive tests	202 (19)	68 (17)	2 (5)	18 (16)	3 (2)	7 (2)	300 (17)

than urine specimens; prior to the pilot, many THO clinical staff had thought this approach to testing would not be acceptable to young women. The numbers of male urine specimens increased from 12% to 27% of total specimens (p<0.001).

The pilot also resulted in recording of more information in the PMS regarding follow-up and outcomes of partner notification. Prior to the pilot, no documentation was kept on follow-up of partner notification activities. Data from the PMS indicated that 25% (n=75) of treated cases had had unprotected sex in the week after treatment; 64% of cases reported they had notified sexual contacts.

Discussion

The Auckland pilot had a dramatic effect on increasing the volume of chlamydia testing in under-25-year-olds, particularly in males. Chlamydia testing in primary care is already known to be acceptable and to be regarded positively by young people if given in the right environment.[8] Previous New Zealand research has found that self-testing is a preferred option for many women and vaginal swabs have good acceptability.[9]

Unfortunately, we cannot comment on test uptake in our study as no documentation was kept regarding how many people were offered testing or how many declined testing. The other main weakness of this study was the contamination of the laboratory data with non-pilot participants. However, the increase in test volumes was of such a magnitude that it is probably safe to assume the pilot was largely responsible for the increase.

There are a number of factors that probably enhanced the effects of this pilot project. Firstly, the visits were free. Previous research in New Zealand has shown that free sexual health consultations in primary care markedly increases chlamydia test coverage and case detection rates, and that, therefore, efforts should be made to reduce cost barriers for young people seeking care for sexual health needs.[10] Secondly, the use of trained practice nurses probably enhanced uptake of testing as was found in a previous pilot study in Wellington, where nurse-led testing achieved the greatest test coverage.[7] Thirdly, normalising chlamydia testing by making it standard practice to offer it to all sexually active young people reduced stigma and probably made it more acceptable.[8]

The increase in testing in the Wellington pilot was not as dramatic as in the Auckland pilot. That pilot project differed in some respects—incentives were used and it did not report specifically on gender breakdown of the increased test coverage. The effect on increased testing did not persist after the Wellington pilot finished.

There was a disturbingly high prevalence of chlamydia in this South Auckland population, particularly in young women aged 14 to 19 years.

Table 3. Chlamydia testing: laboratory specimen type data

Specimen type	Pre-pilot n (%)	Pilot n (%)	p-value
Male urine	94 (11.6)	654 (27.2)	<0.0001
Female urine	89 (11.0)	252 (10.5)	0.68629
Vulval/vaginal swab	22 (2.7)	156 (6.5)	<0.00005
Vulval/vaginal self-collected swab	0 (0)	302 (12.5)	<0.0001
Cervical swab	523 (64.4)	968 (40.2)	<0.0001
Urethral/urogenital swab	58 (7.1)	36 (1.5)	<0.0001
Unspecified	3 (0.4)	18 (0.7)	0.24771
Missing	23 (2.8)	24 (0.8)	<0.0001
TOTAL	**812**	**2410**	

Whilst the major shift from diagnostic to opportunistic testing during the pilot project was associated with a decreased prevalence of positive tests, particularly in males, overall in the under-25-year age group, the positive test rate was more than twofold higher than the 9% reported in the 2011 ESR laboratory surveillance data.[2] Females accounted for the majority of chlamydia tests in the pilot and this was a similar finding to testing patterns in other primary care settings. Data from the much bigger Waikato pilot found there was much lower chlamydia test uptake in males than in females.[6] In contrast to the Waikato pilot and other data,[2] we did not find the prevalence of chlamydia to be higher in those of Maori and Pacific ethnicity compared with Europeans.

There was better documentation of partner notification and follow-up during the pilot and this was encouraging. This is an area of case management of STIs that urgently needs addressing.[11] It should not be too difficult to improve with appropriate training and systems, as it has been shown that trained practice nurses can achieve as good outcomes for partner notification for chlamydia as specialist sexual health clinic advisors.[12] Good follow-up of cases is important, as there is a high rate of re-infection.[13]

In conclusion, there was a large increase in chlamydia testing during the pilot project, but it is doubtful that this is sustainable and the cost benefit of the testing has yet to be established.[14] However, the very high prevalence of chlamydia and recent evidence of much higher rates of hospital admissions for chlamydia-related PID in New Zealand compared with other countries,[15] indicates chlamydia continues to be a very significant health problem for young people presenting to primary care.

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COMPETING INTERESTS
None declared.