Implementation of chlamydia screening in a general practice setting: a 6-month pilot study

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Abstract

Objective To determine whether screening for asymptomatic *Chlamydia trachomatis* infection could be undertaken in the context of a smear clinic or other sexual health consultation in general practice.

Methods A prospective, opportunistic, cohort study was undertaken in a general practice setting. The participants were asymptomatic women aged 16–24 years and men aged 16–34 years who were screened for *Chlamydia trachomatis* by testing endocervical swabs or first-voided urine samples. The main outcome measure was the uptake of the screening offer and the presence or absence of chlamydia infection as indicated by the test result.

Results A total of 115 patients (109 women and six men) were offered screening. Eighty-one (70%) patients accepted, with five positive results, giving an overall prevalence of 6.2% (5/81, 95% CI 1–11%). Of those offered screening when having a smear, 8.3% (3/36, 95% CI 0–17%) were positive.

Conclusion Screening for chlamydia can be undertaken in the context of existing services offered in general practice (e.g. a smear clinic or consultation) where contraception/sexual health is discussed.

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Key message points

- **Screening for asymptomatic chlamydia infection can be offered in general practice.**
- **Consultations for contraception or sexual health advice provide an opportunity to offer screening for chlamydia.**
- **Screening for and treating symptomatic chlamydia may help reduce the incidence of, and sequelae from, untreated infection.**

Introduction

Chlamydia is the most frequently occurring bacterial sexually transmitted disease (STD) in the UK[1] and is asymptomatic in 70% of women and 50% of men.[2] As a consequence, infection is being sustained in sexually active individuals by going unrecognised and thus untreated. The prevalence in a general practice setting varies from 2% to 12%.[3] The potential dangers of not treating asymptomatic cases should not be underestimated as untreated chlamydial infection is the commonest single cause of infertility in women under 35 years, a causative organism in one-third of the cases of pelvic inflammatory disease (PID), and the most common cause of epididymitis in young men.[4,5] The estimated cost of treating chlamydia and its sequelae in the UK is £200 million per year.[6] Chlamydia is an easily treatable condition, and the screening and treating of asymptomatic women reduces the incidence of PID by 56%.[7]

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Methods

Study objectives and design

A chlamydia screening pilot study was undertaken in a general practice setting to see if it would be feasible to incorporate screening into existing services offered at our practice. A 6-month prospective cohort study was undertaken.

Study participants and methods

The practice is suburban, with five full-time principal general practitioners (GPs) (one female), two full-time practice nurses (PNs) and two part-time health care assistants (HCAs). The total practice population of 9030 is relatively stable, with 516 women aged 16–24 years and 541 men aged 16–34 years. In this study the target populations were as follows: women aged 16–24 years who attended for a smear, intrauterine contraceptive device (IUD) fit, emergency contraception, or who were continuing with, or starting, the oral contraceptive pill; and men aged 16–34 years attending for a new patient check or travel immunisations who were offered screening as part of information and advice on sexual health/safer sex practice.

An interactive educational meeting with GPs and PNs was undertaken at the inception of the pilot to discuss chlamydia screening, the type of information a patient might want, the issues likely to be addressed in pretest counselling, and the appropriate technique for taking an endocervical swab. The study was approved by the local research ethics committee.

Before starting the pilot study a retrospective search was made for women aged 16–24 years who had attended for a contraceptive consultation (pill check, to start the pill, received depot contraceptive injections, an IUD fitting or smear) during the preceding 6 months to give an estimate of the number of patients that we might expect to screen. A similar search was not possible for men as we have no computer data about their contraceptive requirements. During this period 135 females (aged 16–24 years) had attended the surgery for some type of contraception. Twenty-eight of these 135 women had also attended for a smear (thus 107 patients who had attended for contraception alone). Forty-four women had attended for a smear but were not obtaining contraception from our practice, giving a total of 151 (i.e. 107 + 44) patients who fulfilled the criteria for the study cohort. Using data from the Portsmouth pilot study[8] we expected a 50% uptake of the offer of screening (or 75 patients), with about 10% testing positive (7–8 patients). This gave an estimated cost of £313.50 (i.e. 75 tests at £4.18) for the tests alone, and excluded the cost of administration time, prolonged PN or GP consultation time, additional GP consultation time and referral time for those patients with a positive test.

Women in the cohort who attended for a routine smear were identified prior to attending the PN-led smear clinic by asking a HCA to check the clinic list. The HCA provided an information leaflet about chlamydia to those in the cohort when they were shown into the examination room. Patients were given time to read the information leaflet. Prior to taking the smear the PN offered the patient a chlamydia test by taking a swab after the smear

had been taken. If the patient declined she was offered a screening test by first-void urine (FVU). A list of those offered and accepting screening was kept by the PN.

Patients attending for a IUD fitting by a GP were offered screening by swab or FVU during the consultation. Women starting or attending for repeat prescription of the oral contraceptive pill, and those attending for first or subsequent depot contraceptive injections, were offered the opportunity to be screened using a FVU. Appropriate patient information was provided with the opportunity to discuss screening. An explanation of how to collect a FVU was given. Those patients who agreed to screening gave verbal consent and a record of this was made by the health care professional involved. A current contact phone number was also taken.

Men (aged 16–34 years) attending for a new patient check were offered chlamydia screening by FVU as part of a safer sex discussion. During this period those attending for travel immunisation advice were informed of our screening programme using FVU if they matched the cohort inclusion criteria.

Urine was collected in standard plastic urine containers and labelled as FVU for chlamydia screening. Patients were asked to refrain from passing urine for 1 h (ideally 4 h), then deposit the first 5 ml of urine into the prelabelled container. When taking an endocervical swab for chlamydia, the cervical os was first cleaned with a large cotton swab. A plastic-stemmed swab was used to obtain a sample of endocervical cells by vigorous rotation of the swab in the endocervical canal in addition to sampling any area of ectopy. Swabs and urine samples were stored in the refrigerator and a twice-daily collection of samples was provided by the hospital service. Both swab and FVU samples were analysed using a strand displacement amplification assay (Beckton Dickinson, Basingstoke, UK) by the local hospital microbiology laboratory.

The results were received as paper copies and via the 'path-links' electronic mail system. Positive results were also communicated to the practice by telephone from the microbiology laboratory. Patients with a positive result were contacted and invited to discuss their result. They were offered referral to the local genitourinary medicine (GUM) clinic for contact tracing and further STD screening, and they were advised to discuss the result with their sexual partner(s). If the partner was also a patient at our practice they were invited to see a GP for screening and treatment. A prescription was given for treatment (doxycycline 100 mg twice-daily for 7 days, or erythromycin 500 mg twice-daily for 14 days if pregnant or if there was a risk of pregnancy as per North Eastern Derbyshire local treatment guidelines). A letter was issued with a copy of the test result. Patients were advised to abstain from unprotected sex until both they and their partner(s) had completed a course of treatment.

Confidence intervals for the proportions of estimated prevalences were calculated using SPSS v.11 (SPSS Inc., Chicago, IL, USA).

Results

During the study period, 228 female patients in the target age group attended the surgery for some sort of sexual health/contraception consultation. In 109 (48%) cases it was recorded that the woman had been offered screening. It was not possible to ascertain how many men in the cohort group attended, as there is no easy way of conducting a computer search to check the number of encounters that had occurred.

Records showed that the total number of patients offered screening was 115 (109 women and six men) of whom 94 (82%) accepted and 21 (18%) declined. Whilst the health care professional involved made a record if screening was accepted, not all those who declined were recorded. A total of 81 (70%) patients had a swab test or provided a FVU, of which five were positive (6.2%, 95% CI 1–11%). Of those five patients with a positive test, three (8.3%, 95% CI 0–17%) were identified when a smear was taken (3/36; two FVU, one swab); two further patients with a positive test result were identified, one at an emergency contraception consultation and one when a repeat depot contraceptive injection was given. Whilst 4/5 patients with a positive test agreed to a GUM referral, one declined, stating that she had not been sexually active for a number of years.

Eighteen (19%) of those who initially accepted screening (or 16% of the total) failed to provide a urine sample. When a patient had not provided a urine sample their notes were flagged so that at their next health care encounter, if appropriate, they could be reminded that screening for chlamydia was still available and could be invited to provide a FVU. Five patients thus approached provided a 'late' sample. All were negative. Figure 1 provides a summary of the study results.

The total cost for testing (excluding administrative time/referrals and GUM clinic visits) was £317.68 (i.e. 76 × £4.18), the cost of antibiotic treatment (all those with a positive test result were treated with doxycycline 100 mg twice-daily for 7 days) was £21.80,[9] giving an overall total of £339.48. This gave a cost per case detected and treated of £67.90; however, this figure obviously underestimates the true overall cost of screening as administration time and other associated costs have not been included. It might be expected that each case would result in the tracing of one or more affected individuals, thus reducing further the cost per case found.

Feedback from the PNs and the HCA was encouraging. They reported that there were three categories of reply to their offer of screening: some women felt that it did not apply to them, some felt that they might go ahead and be tested, and others said that it was a good idea to offer screening in the context of a smear clinic.

Discussion

Screening for chlamydia infection in asymptomatic individuals has two aims: the reduction of morbidity in individuals and the interruption of transmission in sexually active populations. A 6-month prospective cohort study was undertaken in a general practice setting to find out whether it is feasible to offer opportunistic screening within the setting of pre-existing consultations. A previous survey of reported management of chlamydia in general practice found that although 69% of GPs and 49% of nurses who responded felt screening for chlamydia was necessary, only 22% and 43% of those respondents, respectively, felt it was feasible.[10]

In this study the recorded number of patients who were offered screening (115) was lower than we had originally estimated (151). The actual number may have been higher, due to the failure of GPs to document an offer of screening in some of the cases that declined. However, the number who provided a sample for test (81 patients) was very close to our estimate of 75 patients, and represents a 70% uptake of the offer of screening. This is higher than the 50% reported in the Department of Health (DH) pilot,[11] but similar to the 64% reported by the Scottish Chief Scientist Office.[12]

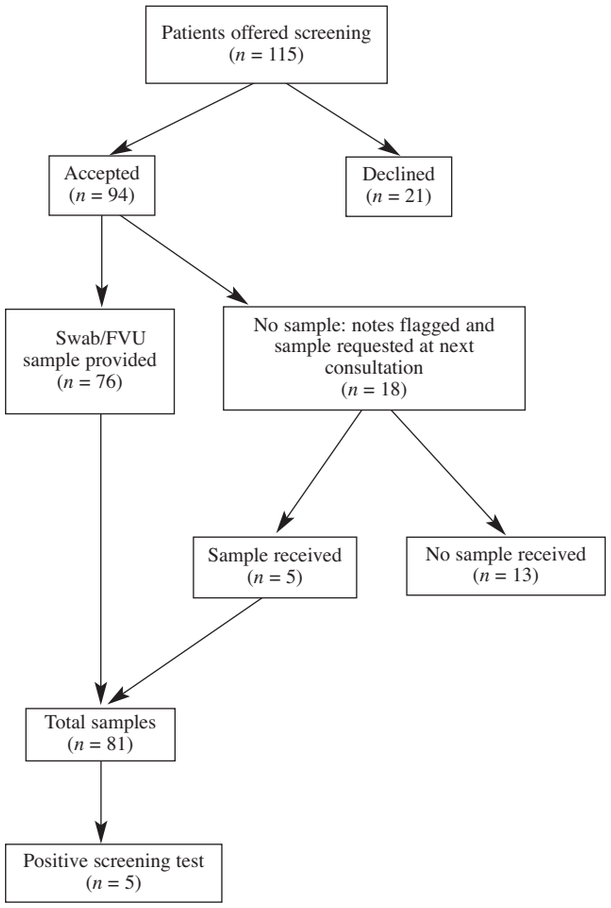

Figure 1 *Breakdown of patients offered a chlamydia screening test in the present study. FVU, first-void urine*

A record of whether screening was offered was kept in 100% (48) of patients in the cohort who attended for a smear. This may be because two people were involved in the offer of screening: the HCA providing the information leaflet and the PN making the offer of screening. In the cohort of 182 women who attended for contraception, a record of whether screening was offered was made in 34% (61) of cases. In a clinic that focuses on one area of health and in which sexual health matters may arise, nurses may be better at recording data and following protocols than GPs. GPs may not have offered screening during some consultations either because they were running late and/or the consultation had already dealt with several issues, or simply because they had forgotten about the screening pilot.

Opportunistic screening of asymptomatic individuals has the advantage that it reaches many who typically would not reply to a postal survey or a request to attend screening.[13] General practice has been identified as a key site for screening,[6] and one of the reasons for this may be that not having to attend a GUM or family planning clinic removes a barrier (whether real or perceived by the individual) to testing.

This study differs from others[8,13] in that symptomatic patients were excluded. We wanted to find out how much work was involved in offering screening to asymptomatic patients, and thus detect and treat those who would not have otherwise presented themselves to the GP. In total 115 patients were offered screening; 81 (70%) provided samples with five positive tests giving a prevalence of 6.2%. In the DH study the overall prevalence of chlamydia was 9.6%, with 8.8% of women lacking genital tract symptoms.[8] In the Wirral pilot study the overall prevalence of chlamydia was 11.7%, with 8.7% positives screened at the GP practice.[13] It is likely that these figures are higher than in our pilot study because we have excluded symptomatic patients. In our pilot study 8.3% of women in the cohort screened during a routine smear had positive tests. This is similar to the figure of 8.2% reported by Underhill *et al*.[8] An Expert Advisory Committee to the DH suggested that screening for chlamydia would be cost effective at a prevalence of 6%,[6] and further reports based on nucleic acid amplification assays have shown that screening populations with a prevalence rate as low as 2% may be cost effective.[14,15] As a consequence, the DH's National Strategy for Sexual Heath and HIV has included plans to begin a national screening programme for chlamydia. Ten opportunistic screening programmes were implemented in 2002, with the addition of a further 16 programmes in 2004.[11]

The wide 95% CI values in our study are due to the small sample size.

This study looked at how opportunistic screening can be offered in the context of existing consultations, whether with the GP or PN. By virtue of the fact that such contacts are more likely to be made by women in the at-risk group, either for contraception or a smear, men in the at-risk group (i.e. those aged 16–34 years) were not afforded the same opportunity for screening. This is a weakness of our study.

It is important to include men who fall into a high-risk group in any offer of screening. First, it recognises that men can be asymptomatic carriers of chlamydia, and therefore for the pool of infection to be reduced they need screening and treating. Second, it reduces the potential stigma that may attach to women who undergo screening and who may be seen as carriers of disease. Finally, it empowers men to take responsibility for their sexual health (and that of their partners). In our study six men and 75 women were screened. The larger number of women screened represents the fact that women are more likely to be current users of health care services (via calls to attend a smear clinic or for contraception) and are therefore easier to reach. We are keen to continue to offer screening as part of a proactive sexual heath programme. The message we wish to send out is that sexually active individuals may have chlamydia, which is a sexually shared infection that is easily treatable and can be diagnosed by a simple urine test.

All the patients with a positive test were given a contact number for the local GUM clinic. We do not know whether any of these patients attended or whether contacts were traced. Patients with a positive chlamydia test should be referred to a GUM clinic for contact tracing, and offered further screening for STDs. In symptomatic patients up to 31% of women and 11% of men have a co-existing genital tract infection,[2] however it is uncertain how many asymptomatic patients have co-existing infection.

The average cost of testing (i.e. cost of the test charged to the practice plus the cost of antibiotics, but excluding administration time and the extra time need for consultations with individuals having a positive test) per case found in this study was £67.90. This is not the total cost of screening as it excludes GUM clinic time, contact tracing, and so on, which are often a major cost. It was difficult to find information on cost per case detected for other infections. One study undertaken in a juvenile detention centre in the USA looked at the prevalence of

chlamydia.[16] In this study an incremental cost per case treated based on urine polymerase chain reaction test for chlamydia was $95.00 (£56.00), although there is no mention of whether administration costs, and so on, were included in this calculation.

GPs may wish to offer screening to asymptomatic individuals in high-risk groups for chlamydia as part of the nationally enhanced service outlined in the new General Medical Services contract[17] and thus recoup some of the costs involved.

We intend to continue offering screening for chlamydia to our patients. We are also looking at ways of encouraging GPs to offer screening in asymptomatic individuals, and of improving patient information about our screening service. We may consider including women in the first trimester of pregnancy, as chlamydial infection is associated with an increased risk of preterm rupture of membranes, low birth weight[18–20] and chlamydial conjunctivitis and pneumonitis.[21–23] In the DH pilot there was a prevalence of 8.4–10.2%[8,13] amongst women attending antenatal clinics.

Conclusions

Screening for chlamydia in asymptomatic patients can be offered in the context of routine services undertaken in general practice. The author is, however, conscious of the pressure on GPs to incorporate yet more health promotion advice into a routine consultation. It is for this reason that the offer of screening was restricted in this study to asymptomatic individuals in the confines of a contraception consultation, or a consultation in which advice about sexual heath would naturally be included in the remit. The importance of screening for and treating asymptomatic chlamydia infection has been recognised with the development of opportunistic screening programmes,[11] hopefully leading to a reduction in the recognised complications of chlamydia infection.[4,5,7]

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