SHORT REPORT

Re-screening Chlamydia trachomatis positive subjects: a comparison of practices between an STI clinic, general practitioners and gynaecologists

Nicole H T M Dukers-Muijrers,1,2 Genevieve A F S van Liere,1,2 Christian J P A Hoebe1,2

ABSTRACT

Objectives Re-screening after an initial positive test is a highly effective strategy to identify new Chlamydia trachomatis positive cases. Here, we evaluate adherence to international re-screening guidelines and the re-screening positive rates among sexual healthcare providers.

Methods Passive retrospective cohort data were obtained from our STI clinic (South Limburg, Netherlands) and from the public laboratory that performs the majority of C trachomatis tests (September 2006–September 2010) conducted in the eastern South Limburg area. We assessed trends in re-screening after 3–12 months among young (16–25-year-old) and older women and men and evaluated differences between providers using multivariate regression analyses.

Results The positive rates in C trachomatis screening varied from 2–9% depending on the type of provider. At the STI clinic, subsequent re-screening was performed in 33% (382/1144) of patients, and 19% of re-screening cases were positive (74/382). Similar rates were observed for gynaecologists (re-screening 30%, 54/178; re-screening positive rate 15%, 8/51); re-screening rates were lower for general practitioners (23%, 144/625, p<0.01), but the positive rate in re-screening was similar (17%, 25/144). At the STI clinic, the re-screening rate was higher for older females (p<0.01) and older males (p<0.01) than for young females. The re-screening rate for young male patients increased over time (p=0.04). General practitioners re-screened young women more often than young (p<0.01) and older (p<0.01) men.

Conclusions Positive rates were high for all care providers when re-screening patients. However, re-screening practices are suboptimal and differ between providers, arguing for improved adherence to current C trachomatis control guidelines.

INTRODUCTION

Re-screening patients positive for C trachomatis is a highly effective strategy to identify and treat new positive cases.1–3 The positive rates in re-screening within a year can be as high as 10–30%.4 A previous positive C trachomatis test predicts a subsequent infection.5 Re-infections are associated with serious reproductive morbidity, although their precise contribution remains unknown.6 Infected persons are more motivated to undergo re-screening.7 In the UK and the Netherlands, sexual healthcare is largely organised in public settings and effected by STI clinics, general practitioners and gynaecologists. In the US, private sector laboratories perform a large number of tests as well.8 Although international guidelines differ regarding the optimal timing of re-screening and appropriate target population—some programmes restrict to young women—US and European guidelines recommend re-screening 3–12 months after the initial positive result.9,10 In the Netherlands, a national multidisciplinary guideline recommends annual re-screening of all C trachomatis-positive patients. Although these guidelines have been in place for some time, adherence among care providers has not been evaluated. Here, we compare C trachomatis re-screening practices employed by different sexual healthcare providers involved in C trachomatis control in our county, assessing time trends, outcomes and adherence to the current guideline.

METHODS

Study population and procedures

The study analysed passive retrospective cohort data from adults aged 16 years and older recorded between September 2006 and September 2010 at the STI clinic of South Limburg (eastern and southern), Netherlands, and at the public laboratory that performs the majority of C trachomatis tests requested by the providers in the eastern South Limburg area. The data included testing date, age, sex, anatomic site and provider. Testing was performed on cervicovaginal and anorectal swabs and on first void urine using a commercially available Nucleic Acid Amplification Test (SDA, Becton Dickinson ProbeTec ET system, Maryland, USA) or PCR (Roche Cobas Amplicor, California, USA).

Definitions

Urogenital testing was performed in all cases; 11% of cases also were tested non-urogenitally. Such multiple-site tests were counted as one C trachomatis test. A re-screening test was defined as a C trachomatis test taken 3–12 months after a positive screening test when both tests were performed by the same provider. A screening test was defined as a C trachomatis test that was not taken within 1 year of a previous positive C trachomatis test.9,10 The first recorded positive C trachomatis test for a given subject was considered to be the screening test.
Epidemiology

Statistical methods
We excluded screening tests and any subsequent tests (n=2009) that were performed during the last year of the data collection to ensure the same window of opportunity for re-screening for all patients. Tests performed within 3 months after a C trachomatis-positive screening test were also excluded (n=575). A total of 28 937 screening tests and 582 re-screening tests were included in the analysis. Only 729 screening tests and 2 re-screening tests were performed by specialists other than gynaecologists. Re-screening rates and positive rates were calculated per C trachomatis positive screening, and determinants (care provider, sex and age combined, and year of screening) were assessed using multivariate logistic regression analyses. Trends were tested stratifying by care provider, and including a term for interaction between year and sex-age. A p value of <0.05 was considered statistically significant.

RESULTS
Chlamydia screening by care provider
Positive rates in screening were 8.6% (1144/13 245) for the STI clinic, 8.5% (n=625/7354) for general practitioners, and 2.3% (n=178/7618) for gynaecologists.

Re-screening and associated determinants
The re-screening rates were similar for the STI clinic (33.4%; 382/1144) and gynaecologists (50.3%; 54/178) but lower for general practitioners (23.0%; 144/625, p<0.01, OR 0.6, 95% CI 0.5 to 0.7 compared with the STI clinic). At the STI clinic, re-screening rates were higher for older women (p<0.01, OR 2.2, 95% CI 1.6 to 3.1) and older men (p<0.01, OR 1.6, 95% CI 1.1 to 2.2) than for young women (table 1). Among young males, the re-screening rate increased over time (p=0.04, annual OR 1.5, 95% CI 1.0 to 2.1); the increase for young women was not significant (p=0.09, annual OR 1.3, 95% CI 1.0 to 1.6). General practitioners re-screened young men (p<0.01, OR 0.4, 95% CI 0.2 to 0.7), older men (p<0.01, OR 0.5, 95% CI 0.3 to 0.8) and older women (not significant; p=0.07; OR 0.6, 95% CI 0.4 to 1.0) less often than they re-screened young women.

Determinants of Chlamydia trachomatis positivity at re-screening
The positive rates in re-screening were similar between care providers (STI clinic 19.4% (74/382); gynaecologists 14.8% (8/54); general practitioners 17.4% (23/134)). The re-screening positive rate increased among young women attending the STI clinic (p=0.01; annual OR 2.3, 95% CI 1.2 to 4.4) (table 1). The anorectal positive rate in re-screening was 19.6% (11/56).

DISCUSSION
This large passive retrospective dataset from sexual healthcare providers revealed that only a third of C trachomatis-positive patients are re-screened within 3–12 months of their initial positive test. Nonetheless, the re-screening rate increased for young male STI clinic attendees and showed an increasing trend among young women. Overall, the STI clinic and gynaecologists re-screened more often than general practitioners. Positive rates in re-screening increased among young women, an important key population for C trachomatis control. Yet, positive rates in re-screening were substantial (15%–19%) in all groups, and higher than positive rates in initial screening (2%–9%). We believe that extra efforts are needed to improve re-screening rates, and that re-screening should not be restricted to patients who self-report symptoms.

Table 1: Rate of Chlamydia trachomatis re-screening and test results at 3–12 months after an initial positive C trachomatis screening test according to sexual healthcare provider, age, sex and year of initial screening

<table>
<thead>
<tr>
<th>Year* of initial screening</th>
<th>STI clinic</th>
<th>General practitioners</th>
<th>Gynaecologists</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age &lt;25 years</td>
<td>Re-screened</td>
<td>% (n/N)</td>
<td>% (n/N)</td>
</tr>
<tr>
<td>2006–2007</td>
<td>13.3 (90)</td>
<td>19.4 (31)</td>
<td>33.3 (11)</td>
</tr>
<tr>
<td>2007–2008</td>
<td>28.1 (2588)</td>
<td>40.0 (126)</td>
<td>40.0 (126)</td>
</tr>
<tr>
<td>2008–2009</td>
<td>24.0 (6/25)</td>
<td>17.9 (31)</td>
<td>17.9 (31)</td>
</tr>
<tr>
<td>2009–2010</td>
<td>39.9 (27/22)</td>
<td>19.6 (31)</td>
<td>19.6 (31)</td>
</tr>
<tr>
<td>Age ≥25 years</td>
<td>Re-screened</td>
<td>% (n/N)</td>
<td>% (n/N)</td>
</tr>
<tr>
<td>2006–2007</td>
<td>25.0 (29/8)</td>
<td>19.4 (31)</td>
<td>33.3 (11)</td>
</tr>
<tr>
<td>2007–2008</td>
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</tr>
</tbody>
</table>

*Each time period begins on 1 September and ends on 31 August.

†Data from general practitioners and gynaecologists in the eastern South Limburg area (public laboratory data) and data from STI clinics in the eastern and southern South Limburg area.
by sex or age, nor should anorectal *C trachomatis* be excluded. Strategies to improve the re-screening rate may include patient counselling with a brief recommendation to return (likely the most common strategy), automatic text message reminders and home-based test kits. Arguably, subjects who underwent re-screening may represent a selected group of highest-risk cases, based on provider triage or ‘self-triage’. This hypothesis could not be investigated because data on patient behaviour, testing rationale and partner treatment were unavailable. However, the use of triage in re-screening is questionable because it is likely to miss many patients who would benefit from re-screening.

In conclusion, re-screening rates are still relatively low, even though the yield of positive cases in re-screening is potentially high. We advocate more stringent adherence to re-screening guidelines for all *C trachomatis*-positive patients by all care providers.

**Key messages**

- Re-screening between 3 and 12 months after the initial positive *Chlamydia trachomatis* test yields a high rate of positive tests for all care providers (between 15% and 19%).
- Re-screening practices yield higher *Chlamydia trachomatis* positive rates than routine *Chlamydia trachomatis* screening practices for all care providers.
- Adherence to re-screening guidelines is suboptimal for all care providers, with adherence rates ranging from 23% in general practitioners to 33% in our public STI clinic, and 30% in gynaecologists.

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**REFERENCES**


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