Effectiveness of a mass media campaign to recruit young adults for testing of *Chlamydia trachomatis* by use of home obtained and mailed samples

Berit Andersen, Lars Østergaard, Jens K Møller, Frede Olesen

**Objective:** To evaluate the effectiveness of a structured information campaign aiming to recruit young adults for a *Chlamydia trachomatis* test by use of a non-invasive, home obtained and mailed sample.

**Methods:** All individuals aged 21–23 living in Aarhus county, Denmark (30 000 young adults) were offered a mailed home sampling test for *C trachomatis* as part of a structured 14 week information campaign on chlamydia. The kit for home sampling could be requested by leaving a message on an answering machine or through a website on the internet.

**Results:** During the campaign 119 of 15 000 women (0.8%) and 64 of 15 000 men (0.4%) were tested. Prevalence of infection was 8.4% (10/119) and 7.8% (5/64) in females and males, respectively. Four infections in women (4/10=40%) and three infections in men (3/5=60%) were asymptomatic.

**Conclusions:** The mass media campaign had only a limited effect, and there is a need for more effective outreach programmes to recruit young asymptomatic individuals for *C trachomatis* testing.

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**Keywords:** mass media; screening; *Chlamydia trachomatis*

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**Introduction**

Urogenital *Chlamydia trachomatis* infection is widespread and may cause female infertility and ectopic pregnancy. Diagnostic tests based on DNA amplification have made outreach sampling possible, and several studies have shown the feasibility of applying such test strategies in the field, in military settings, and in schools. However, strategies based on offering tests to individuals in particular settings do not provide equal access to health care for all. Therefore, there is a need for evaluation of the effectiveness of test strategies targeting the whole population.

The aim of this study was to assess the effectiveness of a mass media campaign to recruit young adults for *C trachomatis* testing by use of home obtained mailed samples.

**Content of campaign**

All the material used in the campaign contained information about the infection and its potential consequences and information on how to order a test package. The campaign consisted of the following: (1) a home page on the internet; (2) general information to the press with several articles in newspapers, radio interviews, as well as interviews in local and nationwide television; (3) posters and leaflets placed in education centres, halls of residence, sport clubs, libraries, physicians offices, and on advertising pillars; (4) posters on bicycle errand boys; (5) posters in buses; and (6) advertising on local radio channels. The total cost of the information campaign (excluded advertising on local radio channels) was £6000 (75 000 DKr).

**Ordering of test package**

Test packages for *C trachomatis* testing could be requested from an answering machine or by email. Requests from individuals who did not live in Aarhus county were not processed. The test package included a first void urine sample tube (men) or a vaginal pipette (women), a written instruction on how to obtain the sample, and a prestamped, preaddressed envelope for returning the sample to the laboratory. Furthermore, information about the study and chlamydia infection in general was given.

**Submission of samples**

Samples were obtained at home by the individuals themselves and mailed directly to the laboratory as previously described. Participants were requested to state their personal identification number (mandatory for medical service in Denmark), whether they had any...
†Individuals not belonging to the target population (aged 21–23 years) were excluded.

*The 27 individuals who did not live in Aarhus county did not receive material for home sampling (exclusion).

Table 1 Individuals ordering material for home sampling and submitting samples in the study

<table>
<thead>
<tr>
<th></th>
<th>Women</th>
<th>Men</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individuals ordering material</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Living outside the county*</td>
<td>8</td>
<td>16</td>
<td>24</td>
</tr>
<tr>
<td>Living in the county on internet</td>
<td>18</td>
<td>18</td>
<td>36</td>
</tr>
<tr>
<td>Living in the county on answering phone</td>
<td>178</td>
<td>128</td>
<td>306</td>
</tr>
<tr>
<td>Individuals submitting samples</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>total†</td>
<td>147</td>
<td>86</td>
<td>233</td>
</tr>
<tr>
<td>from the target population</td>
<td>119</td>
<td>64</td>
<td>183</td>
</tr>
<tr>
<td>in percentage of target population</td>
<td>8.4%</td>
<td>7.8%</td>
<td>8.2%</td>
</tr>
<tr>
<td>(119/15 000)</td>
<td>(64/15 000)</td>
<td>(183/30 000)</td>
<td></td>
</tr>
<tr>
<td>Prevalence of infection in samples submitted by target population</td>
<td>8.4% (10/119)</td>
<td>7.8% (5/64)</td>
<td>8.2%</td>
</tr>
<tr>
<td>Infected without symptoms</td>
<td>40%</td>
<td>60%</td>
<td>50%</td>
</tr>
<tr>
<td>(4/10)</td>
<td>(3/5)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*The 27 individuals who did not live in Aarhus county did not receive material for home sampling (exclusion).
†Individuals not belonging to the target population (aged 21–23 years) were excluded.

In figure 1 the features of the campaign are shown. Of these 651 website visitors, however, only 60 individuals (9.2%) requested a test package. A total of 309 individuals ordered the test package through the answering machine (table 1). Of the individuals requesting the test package through the internet 40% (24/60) were excluded because they lived outside the county and for individuals using the answering machine the figure was 1% (3/309). A total of 196 women (196/205=95.6%) and 146 men (146/164 = 89.5%) received test packages (table 1).

SUBMITTED SAMPLES
Of the 147 women and 86 men who submitted a sample, 28 women and 22 men were excluded because they did not fulfil the age criteria. Thus, 119 of 15 000 women (0.8%) and 64 of 15 000 men (0.4%) from the target population were tested.

Prevalence of infection was 8.4% (10/119) and 7.8% (5/64) in females and males, respectively. Four infections in women (4/10 = 40%) and three infections in men (3/5 = 60%) were asymptomatic.

RELATION BETWEEN CONTENT OF CAMPAIGN AND TEST ACTIVITY
In figure 1 the features of the campaign are related to the number of ordered test packages and number of tests received in the laboratory. A small peak is seen in the first week of the campaign and a second larger peak is coinciding with the advertising on local radio channels. During the last 8 weeks the activity gradually decreased to reach only a few requested test packages at the end of the campaign.

PROFILE OF PARTICIPANTS
The behavioural data obtained from the questionnaires that were sent out to the participants (response rate 157/183=85.8%) showed that most participants have had six or more lifetime partners and were sexually active during last 6 months (table 2). Most women used oral contraceptives, and 46.3% of women and 25.7% of men (χ²=5.75, p=0.016) were previously tested for C. trachomatis, whereas 26.7% of women and 8.9% of men had a positive chlamydia test in the past (χ²= 5.124, p=0.024).

Discussion
This is the first study to address the effectiveness of an information campaign aiming to recruit young adults for C. trachomatis testing by home obtained samples. Less than 1% of men used our website for testing, whereas less than 1% of men used the answering machine. It has been shown that the majority of young adults have at least one lifetime partner and are sexually active during the last 6 months. Therefore, it is important to target the correct population and to use an effective campaign to attract young adults for testing. This is the first study to address the effectiveness of an information campaign aiming to recruit young adults for C. trachomatis testing by home obtained samples.
and women aged 21–23 were tested during the 14 week study period. The prevalence of infection was 8.4% and 7.8% for women and men, respectively.

Mass media are often used in health promotion and have been recommended as part of the infection control measure for chlamydia infection.10 In a recent review of cervical cancer screening it was concluded that mass media campaigns work best when multiple media are used, when they promote specific screening programmes that eliminate or reduce access barriers, and when they are used in combination with other strategies.11 However, even though we used multiple media and gave a unique offer to be tested without seeking a doctor we had a poor response rate. The various components of the campaign had only a short lived effect and continuous promotion seems to be necessary to maintain even a small effect. The effect of the campaign might have been higher if it was performed in a different way, and it may have had effects not measured in this study—for instance, intensified condom use in the population.11 However, our study demonstrates that mass media campaigns for chlamydia need careful consideration with regard to cost effectiveness.

The use of mass media to recruit young adults to be tested for *Chlamydia trachomatis* had only a limited effect, and cannot be recommended as the only measure for recruitment. More effective strategies that reach all individuals in the relevant age group should be searched for.

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**Contributors:** BA coordinated the primary study hypothesis and the core ideas, designed the protocol, obtained approval from the ethics committee and data protection agency, coordinated inclusion of patients, made statistical analysis; and coordinated interpretation of results and wrote the paper; LØ discussed study hypothesis, core ideas, protocol design, discussed interpretation of results, and participated in writing of the paper; JKM discussed study hypothesis and core ideas, led the analysis of samples, discussed interpretation of results and edited the paper; FO discussed study hypothesis, core ideas, protocol design, interpretation of results, and participated in writing of the paper.


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