group representative from the extracorporeal membrane oxygenation trial steering committee) who commented on the communication of results to bereaved parents.

Contributors: CS, JG, and DE initiated the study, discussed core ideas, planned the study design and fieldwork, participated in the analysis, and wrote the paper. CS conducted all the interviews and the textual analysis; she will act as guarantor for the paper.

Funding: The study was funded by the Department of Health and developed from research funded by the Wellcome Trust. The National Perinatal Epidemiology Unit is funded by the Department of Health.

Conflict of interest: None.

1 Goodare H, Smith R. The rights of patients in research. *BMJ* 1995;310:1277-8.
2 Marshall S. How to get patients' consent to enter clinical trials. Participants should be given feedback about the trial. *BMJ* 1996;312:186.
3 Association for Improvements in the Maternity Services, The National Childbirth Trust. A charter for ethical research in maternity care. London: AIMS, NCT, 1997.
4 Radiotherapy Action Group Exposure National. All treatment and trials must have informed consent. *BMJ* 1997;314;1134-5.
5 Schulte P. Ethical issues in the communication of results. *J Clin Epidemiol* 1991;44:57-61S.
6 Bunin GR, Kazak AE, Mitelman O. Informing subjects of epidemiologic study results. *Pediatrics* 1996;97:486-91.
7 Buchwald H, Fitch LL, Matts JP, Johnson JW, Hansen BJ, Stuenkel MR, et al. Perception of quality of life before and after disclosure of trial results: a report from the program on the surgical control of the hyperlipidemias (POSCH). *Con Clin Trials* 1993;14:500-10.
8 UK Collaborative Trial Group. UK collaborative randomised trial of neonatal extracorporeal membrane oxygenation. *Lancet* 1996;348:75-82.
9 UK Collaborative Trial Group. UK collaborative randomised trial of neonatal extracorporeal membrane oxygenation: follow up to one year of age [abstract]. *Pediatrics* 1998;101:690.
10 Snowdon C, Garcia J, Elbourne D. Making sense of randomization: responses of parents of critically ill babies to random allocation of treatment in a clinical trial. *Soc Sci Med* 1997;45:1337-55.
11 Muhr T. A prototype for the support of text interpretation. In: Tesch R, ed. *Qualitative sociology*. New York: Human Science Press, 1991.
12 Royal College of Physicians. *Research involving patients*. London: RCP, 1990.

(Accepted 6 March 1998)

# Efficacy of home sampling for screening of *Chlamydia trachomatis*: randomised study

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

Department of Infectious Diseases, Aarhus University Hospital, PP Ørumsgade 11, DK-8000 Aarhus C, Denmark
Lars Østergaard, *senior registrar*
Research Unit for General Practice, University of Aarhus, DK-8000 Aarhus C, Denmark
Berit Andersen, *research assistant*
Frede Olesen, *consultant physician*
Department of Clinical Microbiology, Aarhus University Hospital
Jens K Møller, *director*
Correspondence to: Dr Østergaard segalt@dadlnet.dk

*BMJ* 1998;317:26–7

Urogenital infections caused by *Chlamydia trachomatis* are common and may cause female infertility and ectopic pregnancy. Such infections are treatable but as *C trachomatis* often causes no symptoms they may remain undetected. As screening for *C trachomatis* reduces the number of complications,[1] and self reportable screening criteria seem to have a low predictive value for infection,[2] testing people not seeking medical care seems relevant. *C trachomatis* can be detected by amplification of DNA from urine and vaginal secretions—samples that can be obtained at home and mailed directly to the laboratory.[3 4] Usually a swab sample is taken by a doctor but if a patient can collect a sample at home this may result in improved screening rates and thus more infections being detected.

## Subjects, methods, and results

We randomised all 17 high schools in Aarhus County into two screening groups. In the home sampling group the females were asked to collect two urine samples and one vaginal flush sample[3] and the males were asked to collect one first void urine sample. These samples were mailed directly from home to the microbiology department at Aarhus University Hospital. In the usual testing (control) group the students were offered testing at their doctors or at the local clinic for sexually transmitted diseases. Both groups received a questionnaire and information on *C trachomatis* infection. The students were asked for their identification number, from which the number of infected respondents in the control group was calculated.

Students in the home sampling group were asked to give an address for receipt of the test results or the address of their doctor. To ensure that infected students followed our advice to seek treatment they were asked to give their doctor an envelope that contained a slip to be returned.

Students who returned the questionnaire were designated responders, and sexually experienced responders were called eligible responders. The efficacy measures were the number of tested and infected students respectively.

Home samples were analysed by an amplified *C trachomatis* test kit (TMA, Gen-Probe, San Diego, CA). Swab samples were analysed by enzyme immunoassay (Microtrak II, Behring Diagnostics, Marburg, Germany) and confirmed by DNA amplification.[5]

In the home sampling group, 1254 of 2603 (48%) females responded compared with 1097 of 2884 (38%) in the control group, and of the 1733 males in the home sampling group, 590 (34%) responded compared with 316 of 1689 (19%) in the control group (table). There was no difference in knowledge of *C trachomatis* infection between the two groups: mean age (females 18.0 years (SD 1.5 years), males 18.2 years (SD 1.7 years)); having a regular intimate relationship (47% of females and 36% of males); and presence of urogenital symptoms (12% of females and 3% of males).

In the home sampling group, 867 (93.4%) eligible females were tested compared with 63 (7.6%) in the control group ($\chi^2 = 1298$, $P < 0.001$). The figures for detected infections were 43 (4.6%) and 5 (0.6%) respectively ($\chi^2 = 26.9$, $P < 0.001$). In the home sampling group, 430 (97.3%) eligible males were tested compared with 4 (1.6%) in the control group ($\chi^2 = 620$, $P < 0.001$). The figures for detected infections were 11 (2.5%) and 1 (0.4%) respectively ($\chi^2 = 4.15$, $P = 0.042$). Statistical significance was also achieved when all students were considered the target population. The slip was returned for 95% of the infected students.

The prevalence of infection was highest in the control group, implying that students in this group were more concerned about the possibility of infection. This



BMJ: first published as 10.1136/bmj.317.7150.26 on 4 July 1998. Downloaded from http://www.bmj.com/ on 1 April 2023 by guest. Protected by copyright.

was shown by the higher rate of tested females with symptoms in the control group (38%) compared with the home sampling group (12%) ($\chi^2 = 23.8$, $P < 0.001$).

## Comment

The efficacy of screening for *C trachomatis* is improved when patients can collect their own samples at home and mail them directly to a laboratory rather than having a swab taken by their doctor. Asking patients to provide home samples may reduce the number of complications from *C trachomatis* and its prevalence.

We thank Mette Jensen and Gitte Høj for their technical assistance.

LØ initiated and coordinated the formulation of the primary study hypothesis and the core ideas, designed the protocol, obtained approval from the ethics commitee and the Danish Data Protection Agency, participated in informing the students, performed data collection, analyses, interpretation, and writing of the paper; he will act as guarantor for the paper. BA discussed core ideas, participated in protocol design, information process, data collection and interpretation, and edited the paper. FO discussed core ideas, participated in protocol design, information process, and interpretation of data, and edited the paper. JKM discussed core ideas, participated in protocol design, information process, data scanning, analysis and interpretation, and edited the paper.

Funding: The study was funded by the Danish National Board of Health (grant No 210 i 1997), Løvens Kemiske Fabriks Research Foundation, Nycomed DAK, Pfizer, and Chairman Jacob Madsen and Hustru Olga Madsen's foundation.

Conflict of interest: None.

Efficacy of home sampling for *C trachomatis* infection compared with usual testing by doctor taking swab (95% confidence interval shown for differences between rate)

| | Females | | Males | |
|---|---|---|---|---|
| | Home sampling group (%) | Control group (%) | Home sampling group (%) | Control group (%) |
| No of students | 2603 | 2884 | 1733 | 1689 |
| Responders | 1254 | 1097 | 590 | 316 |
| Eligible (sexually experienced) responders | 928 (100.0) | 833 (100.0) | 442 (100.0) | 246 (100.0) |
| Eligible responders tested | 867 (93.4)* | 63 (7.6) | 430 (97.3)* | 4 (1.6) |
| Difference between rates (%) | (85.8, 83.5 to 88.3) | | (95.7, 93.5 to 97.8) | |
| Eligible responders infected | 43 (4.6)* | 5 (0.6) | 11 (2.5)† | 1 (0.4) |
| Difference between rates (%) | (4.0, 2.6 to 5.5) | | (2.1, 0.4 to 3.8) | |
| Prevalence of infection (%) | 5.0 | 7.9 | 2.6 | 25.0 |

*P<0.001.
†P<0.05.

1 Scholes D, Stergachis A, Heidrich FE, Andrilla H, Holmes KK, Stamm WE. Prevention of pelvic inflammatory disease by screening for cervical chlamydial infection. *N Engl J Med* 1996;334:1362-6.
2 Ronsmans C, Bulut A, Yolsal N, Agacfidan A, Filippi V. Clinical algorithms for the screening of Chlamydia trachomatis in Turkish women. *Genitourin Med* 1996;72:182-6.
3 Østergaard L, Møller JK, Andersen B, Olesen F. Diagnosis of urogenital Chlamydia trachomatis infection in women based on mailed samples obtained at home: multipractice comparative study. *BMJ* 1996;313: 1186-9.
4 Andersen B, Østergaard L, Møller JK, Olesen F. Home sampling versus conventional contact tracing for detecting Chlamydia trachomatis infection in male partners of infected women: randomised study. *BMJ* 1998; 316:350-1.
5 Østergaard L, Møller JK. Use of PCR and direct immuno-fluorescence microscopy for confirmation of results obtained by Syva MicroTrak Chlamydia enzyme immunoassay. *J Clin Microbiol* 1995;33:2620-3.

*(Accepted 22 December 1997)*

*A memorable patient*

## It pays to be a native

The language of medicine transcends national borders and allows doctors from different countries to communicate despite a limited knowledge of each other's native tongue. However, we all know of patients who, despite English being their first language, are difficult to understand owing to the dialect and strong accent prevalent in their everyday conversation.

It is about two years since I sat the third and final part of my fellowship in ophthalmology and there is one case which I recall in particular but not for its rarity or unusual clinical features. The examination was held in Aberdeen and was stretched out over a period of almost a week. I thought that I had done reasonably well in the written papers and the oral examination and so progressed to the clinical stages in reasonably good spirits, The medicine clinical went as well as I could have hoped with seemingly straightforward cases of neurofibromatosis, acromegaly, dysthyroid eye disease, and ocular myasthenia. At least that's what I thought they were. I was fairly sure now that if I performed reasonably well in the ophthalmology clinical that I would have a better than evens chance of passing overall and have the privilege of admittance to the Royal College of Ophthalmologists. I also knew that failure in this part of the examination would result in overall failure and the prospect of resitting in six months' time.

I was shown into a room where my two examiners were already waiting. I recognised them immediately as distinguished men in the world of ophthalmology. One was from London and the other from Birmingham. They introduced themselves and shook my sweaty hand. My first clinical case was one of Marfan's syndrome with a small, shrunken lens remnant in the anterior chamber, which I eventually diagnosed after some pregnant pauses. I attribute my difficulties to the fact that the patient was five feet tall and weighed 75 kilos. I then struggled through three more cases, my confidence and prospects of passing slipping away with each passing moment.

I knew now that the next case was probably my last chance if I had not already blown it. An elderly gentleman was shown into the room. He had a mop of white hair and a florid complexion suggesting a life that had been lived mainly outdoors. He also had the grossest bilateral ectropion I had ever seen. I was asked to take a brief history and inquired as to what symptoms the patient had been experiencing. "Fin thaur's a win blawn doon fae Bennachie ma een git kinda nippit," he replied. This roughly translates to "when a strong wind blows from a nearby hill my eyes begin to cause me not inconsiderable discomfort." As a native of the north east of Scotland I understood the man perfectly and continued to take his history with my own long buried dialect coming to the fore on one or two occasions.

My examiners seemed impressed by my ability to communicate with this man and they showed him out of the room after thanking him for coming. With a wry smile I was told that there were no further questions and that the examination was complete. I passed.

Alasdair Purdie, *specialist registrar in ophthalmology, Inverness*

We welcome articles up to 600 words on topics such as *A memorable patient, A paper that changed my practice, My most unfortunate mistake,* or any other piece conveying instruction, pathos, or humour. If possible the article should be supplied on a disk. Permission is needed from a patient or a relative if an identifiable patient is referred to. We also welcome contributions for "Endpieces," consisting of quotations of up to 80 words (but most are considerably shorter) from any source, ancient or modern, which have appealed to the reader.



BMJ: first published as 10.1136/bmj.317.7150.26 on 4 July 1998. Downloaded from http://www.bmj.com/ on 1 April 2023 by guest. Protected by copyright.