review

Screening men for *Chlamydia trachomatis* infection: have we fully explored the possibilities?

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Summary: *Genital chlamydial infection is the commonest curable sexually transmitted disease in England and Wales. It is a major cause of pelvic inflammatory disease, ectopic pregnancy, and infertility. For this reason, research, health promotion, and disease prevention initiatives have focused on women. Screening women for chlamydial infection is concerned mainly with identifying and reducing complications among those already infected (secondary prevention), rather than with preventing new infections (primary prevention). Screening men for genital chlamydial infection, a strategy for preventing new infections in women, has been considered problematic because of the cost, the invasiveness of sampling procedures, and the need to screen in clinical settings. The availability of nucleic acid amplification diagnostic tests challenges these limitations and offers new opportunities for actively including men in disease prevention. This article reviews the arguments for and against screening men for genital chlamydial infection and discusses possible stategies for its implementation.*

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Introduction

Chlamydia trachomatis is the commonest bacterial sexually transmitted infection (STI) in England and Wales: over 45000 new infections are diagnosed in genitourinary medicine (GUM) clinics each year[1]. The complications of genital chlamydia infection in women (pelvic inflammatory disease (PID), ectopic pregnancy, infertility, chronic abdominal pain) account for most of the morbidity and cost associated with chlamydia[2].

Reports of *C. trachomatis* in England have increased by nearly 50% in the past 10 years, reflecting in part increased testing and screening[1]. Efforts to control genital chlamydial infection have increased substantially during this period, with a clear emphasis being placed on research, health promotion, and more recently screening, mainly among women. In 1998, the chief medical officer's (CMO's) expert advisory group recommended opportunistic screening of women (all those under 25 years, and all women older than this with greater than two partners in the preceding 12 months)[3]. The recommendation was based on evidence suggesting that this strategy, in conjunction with effective clinical management (including treatment and partner notification and advice on risk reduction), would reduce the prevalence of chlamydia infection[3]. By September 1999, the Department of Health had commissioned pilots of chlamydia screening to assess the feasibility of opportunistic screening of sexually active women aged 16 to 24 years attending a variety of primary care sites and GUM clinics. Sexually active men aged 16 to 24 years attending GUM and some young people's sexual health clinics will also be screened in this initiative.

Health care providers continue to perceive chlamydial infection, like other STIs, primarily as an issue in women's health care because of its damaging effects on the reproductive tracts of women. As a result men are relatively ignorant about its transmission, prevention, and control. The expert advisory group acknowledged that the lack of evidence on the effectiveness of screening in heterosexual men, male attitudes about reproductive health, and the difficulty in accessing young men influenced their recommendations on screening[3].

Should we be screening men?

One of the main reasons for treating chlamydial infection in men is to reduce the risk of transmission to and morbidity among their female partners. This

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Relative underutilisation of primary care services by men reduces the effectiveness of opportunistic screening in this setting, and there is some evidence that men at higher risk of acquiring STIs may be even less inclined to attend these settings[24]. Thus the men most likely to contribute to the disease burden in women may be less likely to be targeted or included in chlamydia control programmes based in primary care. Some have argued that screening should be undertaken in areas where men at increased risk are likely to be found. For such a strategy to be cost-effective, it will be important to determine which population groups of men contribute most to the burden of chlamydia among the women seen in primary care.

What strategies are available for screening men?

Creative strategies, grounded in an understanding of men's sexual health needs, are needed to develop appropriate STI control programmes (including screening) for men. Sexual health interventions are replete with examples of 'difficult-to-reach' groups (for example, ethnic minorities, injecting drug users), which have been successfully identified and targeted for interventions as a result of socio-anthropologic and

epidemiological approaches. Such creativity should be used to explore the feasibility and acceptability of chlamydia screening (using NAAT) among men in both routine clinical as well as non-traditional settings.

Targeting 'captive populations' of men (schools[25], universities, and correctional facilities[26]) has been suggested as a possible strategy. Acceptance of screening varies according to the age groups screened and the location – 59% of eligible high school students after parental and student consent[25] and 98.5% of men in detention centres[26]. The potential benefits include gaining a greater understanding of sexual behaviour and disease epidemiology (prevalence, incidence, and reinfection rates) among men in such settings, where subject attrition or loss to follow up is limited, and it is often easier to ensure resolution of the treatment episode, facilitate partner notification, and deliver targeted health education. Data on sexual and social networks from these interventions should be assessed critically to determine the potential for this approach to reduce overall disease prevalence in the community, particularly among women at high risk. Informed choice should be provided and informed consent obtained from all participants in such a screening programme.

It may also be useful to target men using other health services, including HIV counselling and testing sites[27]. As specialist clinics targeting men – such as 'men only' and young people's clinics – become more popular, opportunities to promote sexual health, educate, and test for infection should be taken. Topics relevant to men include STIs, prostate cancer, safer sex, sexual dysfunction, and healthy sexual relationships. The positive aspects of sexual health should be covered as well as infections and dysfunction[17]. Even those whose tests are negative stand to gain from sexual health promotion. Sites where women are screened should also distribute health promotion materials that tell women where their male partners can be tested and ensure that they encourage them to be tested.

Recent studies have evaluated screening in community settings[28,29] and incorporated urinary screening in nationally representative population samples. Preliminary results from a feasibility study for the second national survey of sexual attitudes and lifestyles in Britain (NATSSAL 2) found no gender differences in uptake of urinary screening for *C. trachomatis* using LCR[30]. A pilot study of chlamydia prevalence in a sub-sample of the National Health and Nutrition Survey (NHANESIII) found that 3.4% of men in Baltimore were infected[31]. Prevalences of up to 15.4% have been documented among African American men aged 18 to 19 years in the National Survey of Adolescent Males[32]. Studies evaluating the feasibility of recruiting men from general medical practice (using on-site urine tests or mail-in urine samples) have also shown promising results[33-35]. In Britain, several studies are now in progress to assess the prevalence of chlamydia among men (NATSSAL 2), the acceptability of different screening approaches to women and men in the community, and to compare the relative performance of newer diagnostic techniques.

Innovative methods of incorporating new diagnostic technologies within the everyday realities of men's lives will have to be considered. This may require abandoning conventional health care settings and venturing into the community to meet men where they are likely to be found. Collaboration with partners in occupational health may facilitate sexual health screening in the workplace. Collaboration with general practitioners, managed care, and private healthcare providers may enable STI screening to become a part of their routine screening activities. Current concerns about the impact of STI screening on insurance risk assessment will need to be addressed: further work with insurers is needed[36]. Finally, appropriate and effective clinical case management of all men diagnosed with chlamydial infections should underpin any proposed screening programme for men.

Conclusions

Although the benefits of screening asymptomatic women for *C. trachomatis* appear, on the surface, to outweigh those for asymptomatic men, this should not lead us to focus solely on women. At best, chlamydia screening for women is concerned with secondary prevention. Primary prevention can be achieved only by reducing the prevalence of chlamydial infection in men. Our poor understanding of the sexual health needs of men (particularly heterosexual men), of their contribution to disease epidemiology, and of how best to target them is unacceptable. Considered investment in further research is now needed to create a robust evidence base on which to develop appropriate health policy.

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