Should asymptomatic men be included in chlamydia screening programs? Cost-effectiveness of chlamydia screening among male and female entrants to a national job training program  
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Record Status
This is a critical abstract of an economic evaluation that meets the criteria for inclusion on NHS EED. Each abstract contains a brief summary of the methods, the results and conclusions followed by a detailed critical assessment on the reliability of the study and the conclusions drawn.

CRD summary
This study examined the cost-effectiveness of various chlamydia screening strategies within a population of male and female youths entering a national job training programme. The authors concluded that universal screening of both men and women was the most cost-effective option for preventing pelvic inflammatory disease. The study was based on appropriate methodology and was accurately described. The authors’ conclusions are likely to be valid.

Type of economic evaluation
Cost-effectiveness analysis

Study objective
This study examined the cost-effectiveness of various chlamydia screening strategies within a population of male and female youths entering a national job training programme.

Interventions
The strategies for all women included no screening, endocervical deoxyribonucleic acid (DNA) probe screening, endocervical nucleic acid amplification test (NAAT) screening, and urine NAAT screening. The strategies for men included no screening, urine NAAT screening for only those with leukocyte esterase-positive urine, and urine NAAT screening for all. Several combinations of male and female screening strategies were also considered.

Location/setting
USA/community.

Methods
Analytical approach:
This economic evaluation was based on a decision analytic model with a hypothetical cohort of 2,000 men and 2,000 women. The model had a 10-year time horizon. The authors stated that the analysis was carried out from the perspective of the public health care payer.

Effectiveness data:
The clinical data came from a selection of known, relevant published and unpublished studies and primary data collection. For instance, the chlamydia prevalence data were derived from a sample of men and women, who entered the New England job training programme between February 2001 and February 2004. This study also provided data on the average number of partners for men and women aged 16 to 24 years. The accuracy of screening was calculated, using a modified meta-analytic approach, from studies identified through a Medline search, the details of which were provided in an appendix. Some assumptions, based on both authors’ opinions and other published reports, were also made. The key clinical endpoint was the prevalence of disease.

Monetary benefit and utility valuations:
Not relevant.

Measure of benefit:
The summary benefit measure was the number of prevented cases of pelvic inflammatory disease (PID) and its sequelae (infertility, ectopic pregnancy, and chronic pelvic pain) in women, and of epididymitis in men.
Cost data:
The economic analysis included the costs associated with screening tests; office visits; treatment medications; and in-patient and out-patient services associated with the treatment of PID, its sequelae, and epididymitis. When only charges were available, cost-to-charge ratios were applied to calculate the true costs of the health care services. The resource use was reported only for some items and the sources of resource consumption data were not reported. The costs were derived from primary Medicare data or published studies. The price year was 2005. Costs were in US dollars ($) and were discounted at an annual rate of 3%.

Analysis of uncertainty:
Both univariate and bivariate sensitivity analyses were performed on the key model parameters, such as prevalence of disease, test accuracy, number of partners, cost of screening tests, etc. Alternative values were based on published ranges or on authors' assumptions.

Results
The total annual costs in the cohort of 2,000 women were $200,000 with no screening, $138,000 with DNA probe, $127,000 with urine NAAT, and $111,000 with endocervical NAAT. The expected cases of PID were 106 with no screening, 42 with DNA probe, 28 with urine NAAT, and 19 with endocervical NAAT.

The total annual costs in the cohort of 2,000 men were $149,000 with no screening, $113,000 with selective urine NAAT, and $97,000 with urine NAAT for all. Urine NAAT for all men was the most effective strategy in reducing the cases of PID and epididymitis.

Thus, all screening strategies were dominant (i.e. less expensive and more effective) over no screening. In addition the combination of NAAT screening both for all women by endocervical test and for all men by urine test was the least expensive and most effective strategy among screening options.

The sensitivity analysis showed that the most influential model input was the number of female sexual partners. Other parameters driving the results were the NAAT fee, chlamydia transmission rate, leukocyte esterase test sensitivity, and cost of PID sequelae.

Authors' conclusions
The authors concluded that universal screening of both female and male youths entering a national job training programme was the most cost-effective option for preventing PID.

CRD commentary
Interventions:
The rationale for the selection of the comparators was clear in that a background no screening strategy was compared against available options, including the recently implemented screening at the job training programme.

Effectiveness/benefits:
The clinical data were taken from several sources which, generally, appeared to be appropriate. For example, the prevalence data and number of partners came from a primary study conducted in the authors’ setting, while test accuracy came from a meta-analysis. Details on other source studies were not given, but it appears that the clinical analysis was based on valid sources. The key clinical inputs were varied in the sensitivity analysis. The benefit measure was specific to the disease studied and cannot be used to compare the findings of this study with those of other economic evaluations.

Costs:
The categories of costs were appropriate for the perspective stated. The costs and quantities were presented separately for several items. Other costs, such as those associated with in-patient treatment, were reported as macro-categories. This is a typical approach when Medicare sources are used. Details on the price year and discount rate were appropriately given. In general, the economic analysis was conducted satisfactorily.

Analysis and results:
The synthesis of costs and benefits was appropriately carried out using an incremental analysis. The expected costs and benefits were presented. The issue of uncertainty was restricted to a deterministic analysis, but this considered all the relevant model inputs and was presented in detail. The authors pointed out that their results might not be generalisable beyond a job training setting. They discussed the results of other studies, with some conflicting findings in the cost-effectiveness of screening men for chlamydia. This study was conducted to overcome some of the limitations of these previous analyses.

Concluding remarks:
The study was based on appropriate methodology and was accurately described. The authors' conclusions are likely to be valid.

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