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.

Health technology
Screening tests for chlamydia trachomatis infection in women.

Type of intervention
Screening.

Economic study type
Cost-effectiveness analysis.

Study population
FP and STD female clients.

Setting
Hospital. The study was carried out in the USA.

Dates to which data relate
Effectiveness data were collected from a single study, which related to the periods October 1989 to April 1990 and throughout 1993, and from studies previously published between 1979 and 1993. Resource use and cost estimates were derived from studies published between 1986 and 1987 and from other sources. The price year was 1993.

Source of effectiveness data
Effectiveness data were derived from a single study and a literature review.

Link between effectiveness and cost data
The costing was not undertaken on the same patient sample as that used in the effectiveness study. The costing was carried out after the effectiveness results were known.

Study sample

Study design
Cross-sectional cohort study carried out at multiple centres. No patients were lost to follow-up.
Analysis of effectiveness

The analysis of the clinical study was based on intention to treat. The primary outcomes studied were the risk factors for chlamydial infection. Compared to FP clients, STD clients were older, more racially diverse, more likely to report all behavioural risks and barrier contraceptive use, and were diagnosed more frequently with cervicitis.

Effectiveness results

Chlamydia trachomatis prevalence among FP and STD clients was 6.6% in each group. The proportion of women screened was 52.7% among FP clients and 76.8% among STD clients. The number of women with chlamydia trachomatis detected by screening was 576 out of 11,141 FP clients and 1,322 out of 19,762 STD clients. The sensitivity of the selective screening criteria was 73.9% among FP clients and 93.7% among STD clients. The positive predictive value of the selective screening criteria was 9.2% among FP clients and 8.2% among STD clients. The proportion of additional cases of chlamydia trachomatis detected by adding cervicitis to the selective screening criteria was 32% among FP clients and 17% among STD clients.

Clinical conclusions

The selective screening criteria chosen were age 20 years or younger and the presence of at least one behavioural risk. Cervicitis was not a necessary criterion for screening.

Modelling

A decision analytic model was used to determine the cost-effectiveness of three screening strategies for genital chlamydial infection in women.

Outcomes assessed in the review

The review assessed the following outcomes: effectiveness, complications and compliance with treatment, the development of sequelae of untreated infection in women, the prevalence of neonatal disease and disease in male sex partners.

Study designs and other criteria for inclusion in the review

Not stated.

Sources searched to identify primary studies

MEDLINE was searched from 1985 to September 1994.

Criteria used to ensure the validity of primary studies

Not stated.

Methods used to judge relevance and validity, and for extracting data

Summary statistics from each study.

Number of primary studies included

Approximately 20 studies were included.

Methods of combining primary studies

Not stated.
Investigation of differences between primary studies
Not stated.

Results of the review
The effectiveness, complications and compliance with treatment were 95%, 5%, and 70-100%, respectively. 60% of all pelvic inflammatory disease (PID) was estimated to be silent. The probabilities of symptomatic and silent PID arising from untreated chlamydial infection were 10% and 15%, respectively. The probability of ectopic pregnancy occurring after chlamydial PID was estimated at 5% to 10%, whereas that of tubal infertility ranged from 8% to 40%. 25% of women with tubal infertility were assumed to seek medical evaluation. The probability of chronic pelvic pain was 18%. The prevalence of pregnancy was 10% for FP clients and 3% for STD clients. Maternal cervical infection resulted in neonatal conjunctivitis in 25% to 50% of clients and in pneumonia in 10% to 20% of clients. The probability of chlamydial transmission to a male sex partner was 33%. Symptomatic urethritis prompting clinical evaluation developed in 40% of infected men, with epididymitis occurring in 1%.

Measure of benefits used in the economic analysis
The primary measures of benefit were the number of cases of chlamydial infection of the cervix (not) detected and the number of cases of chlamydial infection of the cervix prevented.

Direct costs
Costs for tubal infertility were discounted at an annual rate of 5% over 10 years and those for ectopic pregnancy and chronic pelvic pain at an annual rate of 5% over 5 years. All other costs were assumed to occur within the first year after diagnosis. Quantities and costs were reported separately. Direct costs included costs of screening, costs of treating sequelae of untreated infection in women, costs of neonatal disease, and costs of disease in male sex partners. The quantity/cost boundary adopted was that of the health service. The estimation of quantities and costs was based on actual data. The costs for clinic visits and for the treatment of uncomplicated chlamydial infection and outpatient PID were obtained from the Region X Office of Family Planning. Costs for inpatient treatment and for sequelae of untreated infection were updated using the medical care component of the Consumer Price Index. The price year was 1993.

Statistical analysis of costs
Not reported.

Indirect Costs
Aggregated annual mean earnings of an individual by age and sex were used to calculate indirect costs associated with lost productivity.

Currency
US dollars ($).

Sensitivity analysis
Sensitivity analysis was performed on the probability of pelvic inflammatory disease.

Estimated benefits used in the economic analysis
Among 1,000,000 FP clients, the numbers of cases of chlamydial infection not detected were 66,000 for no screening, 29,320 for selective screening, and 18,975 for universal screening. Among 1,000,000 STD clients, the numbers of cases of chlamydial infection not detected were 66,000 for no screening, 21,326 for selective screening, and 18,975 for...
universal screening. Among 1,000,000 FP clients, the number of cases of chlamydial infection prevented were 36,680 for selective screening, and 47,025 for universal screening. Among 1,000,000 STD clients, the numbers of cases of chlamydial infection prevented were 44,674 for selective screening, and 47,025 for universal screening.

Cost results
For a population of 1,000,000 FP clients, total costs amounted to $84,014,080 for no screening, $45,694,782 for selective screening, and $38,796,944 for universal screening. For a population of 1,000,000 STD clients, total costs amounted to $82,294,551 for no screening, $38,178,099 for selective screening, and $38,302,370 for universal screening.

Synthesis of costs and benefits
For a population of 1,000,000 FP clients, the incremental cost per case prevented amounted to $-1,044 for selective screening, and $-667 for universal screening. For a population of 1,000,000 STD clients, the incremental cost per case prevented amounted to $-987 for selective screening, and $53 for universal screening. These results were most sensitive to variation in the range of PID probabilities.

Authors’ conclusions
At the chlamydia prevalences in the populations studied, it would be cost saving to screen universally in FP clinics and selectively in STD clinics, the reverse of current practice in many locales.

CRD COMMENTARY - Selection of comparators
The rationale for the choice of the comparators was clear. You, as a user of this database, should verify whether these health technologies are relevant to your own setting.

Validity of estimate of measure of benefit
A relevant measure of benefit was used. More details about the design of the studies from which effectiveness estimates were derived and about the method of combination of estimates could have been provided. The authors noted that the diagnostic tests used in this study had sensitivities substantially lower than those of amplified DNA tests and that the prevalence of disease was probably underestimated. It was acknowledged that better data were needed on the true risk of PID and fallopian tube damage after untreated infection, and on the duration and consistency of current contraceptive use.

Validity of estimate of costs
Direct and indirect costs were included. Indirect costs of uncomplicated chlamydial infection were not included. The authors noted that the direct costs used in their model may underestimate costs in other settings, such as private physicians’ offices. The results of sensitivity analysis on cost estimates were not reported.

Other issues
The limited value of cervicitis as a predictor of chlamydial infection may reflect variability in its diagnosis or in the relative proportion of incident versus prevalent and symptomatic versus asymptomatic infections in the FP and STD settings. Several less common but costly outcomes, in which chlamydia trachomatis may play a causative role, such as low birth weight and post-partum endometritis were not considered. The generalisability of the results to other settings was discussed and adequate comparisons with other relevant studies were made.

Implications of the study
More data are needed on the various effectiveness measures and other diagnostic tests should be included in the analysis.
Source of funding
None stated.

Bibliographic details

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9132979

Other publications of related interest

Indexing Status
Subject indexing assigned by NLM

MeSH
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