Cost-effectiveness analysis of Chlamydia trachomatis screening via internet-based self-collected swabs compared with clinic-based sample collection

Huang W, Gaydos CA, Barnes MR, Jett-Goheen M, Blake DR

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
The objective was to assess the cost-effectiveness of screening for Chlamydia trachomatis, using a self-collection kit, requested via the Internet, compared with the traditional clinic-based screening. The authors concluded that self-swab screening was cost-effective compared with clinic-based screening. Assuming that the clinical study that provided the relative screening rates was not biased, the authors’ conclusions appear to be valid.

Type of economic evaluation
Cost-effectiveness analysis

Study objective
The objective was to assess the cost-effectiveness of screening for Chlamydia trachomatis, using a self-collection kit, accessed on the Internet, compared with the traditional clinic-based screening.

Interventions
The two interventions were: self-testing or clinic-based screening. With self-testing, women accessed a website (www.iwantthekit.org) to request a home collection kit, consisting of a sample collection swab, a transport tube, directions, and a stamped addressed envelope for return.

Location/setting
USA/primary care.

Methods
Analytical approach:
A decision-tree model was designed to assess a hypothetical cohort of 10,000 women per year who requested Chlamydia trachomatis screening. The time horizon was 10 years. The authors reported that the perspective was that of the public health care system.

Effectiveness data:
The clinical and effectiveness data were from a number of sources, including data collected from July 2004 to June 2010 as part of the evaluation of the self-testing website, and published studies. The relative screening rates were from a study comparing home-based screening to clinic-based screening. A literature search in PubMed was used to determine the sensitivity and specificity of the vaginal and endocervical Aptima Combo 2 (AC2) tests. The key terms of the search and the inclusion criteria were reported.

Monetary benefit and utility valuations:
None.

Measure of benefit:
The measure of benefit was the number of cases of pelvic inflammatory disease (PID) that were prevented.

Cost data:
The direct costs were those of website maintenance and personnel, screening kits, tests, clinician visits, consumables (gloves, drapes, speculum, etc.), medication, in-patient and out-patient treatment for PID, and treatment for infertility,
ectopic pregnancy, and pain. The resource use and costs were from the evaluation of the self-testing intervention and from published studies. The price year was 2010 and future costs were discounted at an annual rate of 3%. All costs were reported in US dollars ($).

Analysis of uncertainty:
One- and two-way sensitivity analyses were undertaken by varying all the parameters over defined ranges.

Results
For a hypothetical cohort of 10,000 women, there were 179.9 PID cases with self-testing compared with 215.4 PID cases with clinic screening. The costs of self-testing were $860,000 compared with $902,000 for clinic screening.

Self-testing was dominant over clinic screening, as it was less costly and more effective.

The sensitivity analysis showed that even at low prevalence of Chlamydia trachomatis or at low costs for treating PID sequelae, self-testing remained cost-effective.

Authors’ conclusions
The authors concluded that website-based, self-swab screening was cost-effective compared with the traditional, clinic-based screening.

CRD commentary
Interventions:
The interventions were sufficiently described and a reference was given for further information.

Effectiveness/benefits:
The clinical and effectiveness data were from various sources, including the evaluation of the website and published studies. The design and quality of the clinical study that provided the ratio of screening rates for the two approaches was not reported. It was assumed that the uptake of home-based screening for sexually transmitted diseases, in this study, would be the same for the website intervention. The authors reported that the sensitivity and specificity of the tests was identified by a review in PubMed. Only one database was searched, but it is reasonable to assume that all the relevant major information was included.

Costs:
The perspective was explicitly reported and it appears that all the cost categories and costs relevant to this health care system perspective were analysed. The sources for the data were adequately reported. The price year, time horizon, discount rate, and currency were reported.

Analysis and results:
The evidence on the costs and effectiveness was synthesised using a decision-tree model. Brief details of the model structure were reported, but no diagram was provided. The uncertainty was assessed in one- and two-way sensitivity analyses, but no probabilistic sensitivity analysis was undertaken. A probabilistic analysis is considered to be the gold standard when assessing overall model uncertainty. As the main limitation to their study, the authors reported that the model did not consider transmission or time-to-treatment effects; there is no reason to suspect that these would favour self-testing.

Concluding remarks:
Assuming that the clinical study that provided the relative screening rates was not biased, the authors’ conclusions appear to be valid.

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