

Cost effectiveness of home based population screening for *Chlamydia trachomatis* in the UK: economic evaluation of chlamydia screening studies (ClaSS) project

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ABSTRACT

Objective To investigate the cost effectiveness of screening for *Chlamydia trachomatis* compared with a policy of no organised screening in the United Kingdom.

Design Economic evaluation using a transmission dynamic mathematical model.

Setting Central and southwest England.

Participants Hypothetical population of 50 000 men and women, in which all those aged 16-24 years were invited to be screened each year.

Main outcome measures Cost effectiveness based on major outcomes averted, defined as pelvic inflammatory disease, ectopic pregnancy, infertility, or neonatal complications.

Results The incremental cost per major outcome averted for a programme of screening women only (assuming eight years of screening) was £22 300 (€33 000; \$45 000) compared with no organised screening. For a programme screening both men and women, the incremental cost effectiveness ratio was approximately £28 900. Pelvic inflammatory disease leading to hospital admission was the most frequently averted major outcome. The model was highly sensitive to the incidence of major outcomes and to uptake of screening. When both were increased the cost effectiveness ratio fell to £6200 per major outcome averted for screening women only.

Conclusions Proactive register based screening for chlamydia is not cost effective if the uptake of screening and incidence of complications are based on contemporary empirical studies, which show lower rates than commonly assumed. These data are relevant to discussions about the cost effectiveness of the opportunistic model of chlamydia screening being introduced in England.

INTRODUCTION

Chlamydia trachomatis is the most commonly reported sexually transmissible infection in developed countries. The asymptomatic nature of the disease means that treatment is often delayed, leading to an increased risk of complications and transmission to partners. Complications in women include pelvic inflammatory

disease, ectopic pregnancy, and infertility, along with neonatal complications in their children.¹

In April 2003 the national chlamydia screening programme began its roll-out across England.² No organised screening existed before this. The programme is managed nationally by the Health Protection Agency, but the way in which screening is delivered is decided locally and run from a chlamydia screening office.² The main approach is opportunistic, but in some areas general practice registers are being used to send proactive invitations to potentially eligible people or to remind them to be re-screened.

Most published economic evaluations have suggested that screening for chlamydia is cost effective.³ The validity of this conclusion has been questioned by a systematic review showing that all but two of the evaluations used static decision analytic models.^{4,5} These models do not incorporate the dynamic effects of transmission of infectious diseases and can produce misleading results. Whether opportunistic screening approaches can control transmission of *C trachomatis* in the long term is also debated.⁶ An alternative approach is to use population registers to proactively invite young adults to be screened.^{1,7} This is the only screening approach that has been shown in randomised trials to reduce the incidence of pelvic inflammatory disease.⁸

Here we report the results of an economic evaluation comparing proactive register based screening with a policy of no organised screening. The evaluation was a cost effectiveness analysis, carried out from the perspective of the National Health Service, based on “major outcome averted,” which we defined as the occurrence of at least one episode of pelvic inflammatory disease leading to hospital admission, ectopic pregnancy, infertility, or neonatal complications due to chlamydia. We used a modelling approach, as opposed to direct estimation, because of the time lag between implementation and the realisation of any future benefits of chlamydia screening. We chose a transmission dynamic model, which is appropriate

for evaluating the impact of screening for an infectious disease.^{5,9}

The chlamydia screening studies (ClasS) project, in the United Kingdom, collected empirical data on the coverage and uptake of screening, the population prevalence of chlamydia infection,⁷ the effectiveness of partner notification,¹⁰ the performance characteristics of different laboratory tests, and the costs of screening.¹¹ Screening was offered proactively to women and men identified from patient registers of 27 general practices in the Bristol and Birmingham areas. Participants were invited to collect vulvo-vaginal specimens, urine specimens, or both at home and to send these in prepaid envelopes to a local laboratory for testing. People with positive results received these at their general practice and those with negative results were informed by mail. Notification of partners took place at the general practice or at a local genitourinary medicine clinic (www.chlamydia.ac.uk).^{1,10}

METHODS

We developed a new transmission dynamic simulation model based on a framework created by Kretzschmar.¹² The model, programmed in Borland Delphi (version 4, Borland International, Scotts Valley, CA, USA), used discrete event simulation. The modelling methods are described elsewhere,¹ including details of the calibration process in which the model data were adjusted to fit the observed prevalence by age and sexual behaviour. The population was simulated over time, with individual

characteristics changing on a daily basis. The initial population was 50 000 virtual people aged between 12 and 62 years with ages drawn from a uniform distribution. As the model runs, people die in line with standard UK life tables and new people at the minimum age are added. During the running of the model, partnerships were formed and dissolved. The model needed a warm-up period to reach a steady state. We introduced screening into the model after the warm-up period. We ran the model 40 times against the scenario of no organised screening for a total of 15 000 (simulated) days each time. Each run was based on a different set of randomly generated numbers and took approximately three hours of processor time. At any time a person's chlamydia status could be one of the following: none, latent, asymptomatic, having symptoms, or experiencing inflammation. In the absence of a population screening programme, we assumed that people could be treated either by presenting with symptoms or through background opportunistic testing.

We parameterised the model wherever possible by using empirical data collected in one of the four components of the chlamydia screening studies project outlined above.^{1,7,10,11} We used nationally representative data from studies such as the second national survey of sexual attitudes and lifestyles where necessary.¹³ We based incidence rates of long term complications associated with chlamydia that necessitated admission to hospital on data from the Uppsala women's cohort study,¹⁴ as no equivalent UK data were available. We

Table 1 | Inputs relating to transmission and progression of chlamydia

Parameter*	Value	
Average probability of transmission, men to women per day†	0.077	
Average probability of transmission, women to men per day†	0.061	
Incubation period—men (days)	10	
Incubation period—women (days)	12	
Probability asymptomatic—women	0.7	
Probability asymptomatic—men	0.25	
Recovery rate per day—asymptomatic women	0.005	
Recovery rate per day—women with symptoms	0.025	
Recovery rate per day—asymptomatic men	0.005	
Recovery rate per day—men with symptoms	0.03	
Progression per day, chlamydia to epididymitis	0.0001	
	(Estimate per episode)	(Progression per day)
Progression of chlamydia to severe PID‡	0.036	0.00018
Infertility§	NA	0.0005
Ectopic pregnancy§	NA	0.008
Neonatal complications	0.45	0.013

NA=not applicable; PID=pelvic inflammatory disease.

*Drawn from Kretzschmar et al 2001.¹²

†Based on partnership specific rate of sexual contact multiplied by transmission per contact based on Kretzschmar et al 2001.¹² Probability of transmission not related to duration of partnership.

‡Model input calibrated to incidence of PID estimated from Uppsala women's cohort study.¹⁴ Estimated progression per day of chlamydia to PID achieved through process of calibration in dynamic model. Comparable figure to probability estimates typically presented in literature,¹⁵ which are in terms of probability of PID per episode of infection with chlamydia, estimated by multiplying daily rate found in calibration process by duration of infection, estimated in dynamic model to be 200 days.¹² Thus 0.00018×200 days=0.036, which is probability of developing PID per episode of infection with *Chlamydia*.

§Ectopic pregnancy and infertility are not considered sequelae of PID but are based on tubal damage; risk of these outcomes increases with repeated reinfection. Different assumptions about PID in the model would therefore not affect other sequelae. Dynamic model allows risk of ectopic pregnancy and infertility to depend on past chlamydia, so comparable figures to those typically presented in published studies cannot be given.

identified additional data on the probabilities of long term sequelae in our review of economic evaluations,⁵ and we used these in the sensitivity analyses.

We based the main inputs relating to transmission and progression of chlamydia on those in the original models (table 1).^{12,15} We incorporated the probability estimates for pelvic inflammatory disease, ectopic pregnancy, and infertility into the model dynamically and independently. By considering each complication separately, we could examine uncertainty about rates of progression to severe and mild pelvic inflammatory disease,¹⁴ independently from progression rates to ectopic pregnancy and infertility. We used empirical data from the chlamydia screening studies project and from other sources to provide likely values for the number of partners, the frequency of changes of partner, and changes in these parameters by age (table 2).^{17,16} The exact values used in the model were determined as part of the calibration process. This means that we did not directly enter critical parameters such as population prevalence of chlamydia by age but made adjustments until the model reproduced the observed prevalence pattern by age and also had as close a fit as possible to the sexual behaviour

parameters. Table 2 shows the comparison between the observed and calibrated data.

We prospectively collected primary data on costs and resource use, including the private costs to patients of participating in the screening programme. We used the costs of running the chlamydia screening studies project, including laboratory staff and tests, treatment, and partner notification, as a proxy for NHS costs of running a population screening programme.¹¹ We converted all costs to 2005 prices (£ sterling) by using the combined hospital and community index. We applied the recommended discount rate of 3.5% to costs and outcomes in the base case.¹⁷

Analysis

In the base case analysis we compared proactive population screening with no organised screening but assumed that some background chlamydia testing would occur. We assumed that screening was offered annually for people aged 16-24 years. The screening test used was Cobas Amplicor CT (Roche Diagnostics, Basel) for both population screening and background screening. We assumed that notification of partners took place at the general practice surgery.¹⁰

We based the evaluation on three comparisons: screening women only versus no organised screening; screening men and women versus no organised screening; and screening men and women versus screening women only. No robust information exists for quality adjusted life years (QALYs) relevant to the sequelae associated with chlamydia. The only published source of estimates for these QALY weights was based on expert opinion rather than empirical research.¹⁸ We therefore present our results as incremental cost effectiveness ratios in terms of the cost per additional major outcome averted by proactive population screening compared with a policy of no organised screening. The lower the incremental cost effectiveness ratio, the more cost effective the intervention. We carried out a one way sensitivity analysis, in which the perspective was widened to represent a societal perspective by including the private cost to individuals, response rate and screening interval were each varied, the discount rate was varied, the incidence of pelvic inflammatory disease was replaced by estimates from the literature, a scenario combining high uptake and high incidence of pelvic inflammatory disease was considered, and the costs of pelvic inflammatory disease and infertility were varied according to alternative assumptions about resource use.

RESULTS

Table 3 presents the base case parameters relating to the screening programme, based on the chlamydia screening studies project.^{17,11,19} Table 4 presents the unit costs, which show that the cost per screening invitation was estimated to be £14.65 (€21.69; \$29.54).¹¹ The baseline results suggest that, after the introduction of home based postal screening, the prevalence of chlamydia would drop to a new equilibrium value, particularly in the younger age groups in whom prevalence

Table 2 | Comparisons between model outputs and prevalence data from chlamydia screening studies (ClASs) project

Age range (years)	Model results		ClASs survey	
	Men	Women	Men	Women
Prevalence (%)*				
15-19†	4.09	6.25	3.41 (2.26 to 5.15)	6.20 (4.80 to 8.59)
20-24	7.51	6.53	6.92 (5.22 to 8.98)	6.15 (4.93 to 8.35)
25-29	3.30	2.13	0.62 (0.20 to 1.86)	3.27 (2.01 to 6.65)
30-39	0.63	0.23	0.44 (0.06 to 2.94)	0.32 (0.05 to 2.34)
Mean age difference with partner (years)‡				
16-19	0.83	-2.41	0.37	-2.21
20-24	1.65	-1.74	1.41	-2.10
Percentage reporting ever had sex‡§				
16-19	57.78	85.81	54.2	80.6
20-24	94.16	99.63	92.1	95.4
Mean length of reported partnership (months)‡				
16-19	7.80	10.98	7.61	8.44
20-24	16.82	17.81	17.86	32.24
Sexual activity groups (%)¶				
16-24:				
Periphery	71.71	72.64	72.6	79.2
Adjacent	16.03	21.36	17.4	15.1
Core	12.26	6.00	10.0	5.7
25-39:				
Periphery	84.21	89.20	80.5	91.0
Adjacent	13.23	8.05	12.7	6.6
Core	2.56	2.75	6.8	2.4

Values in parentheses are 95% confidence intervals.

*Data taken from table 64 of report by Low et al.¹

†ClASs survey results for age group 16-19 years.

‡Data taken from table 53 of report by Low et al.¹

§Data based on case-control study in report by Low et al.¹

¶Laumann and Youm use activity groups defined by number of partners in previous 12 months, calling those with no or one partner the "periphery," those with two or three partners the "adjacent," and those with four or more partners the "core."¹⁶

Table 3 | Parameters for population screening

Parameter	Value	Source
Population prevalence of chlamydia (age 16-24)	0.062	ClaSS ^{1 7}
Compliance with screening (women)	0.39	ClaSS ^{1 7}
Compliance with screening (men)	0.29	ClaSS ^{1 7}
Waiting time for result of screening (days)	30	Assumption
Sensitivity of screening test (men)	0.999	ClaSS ¹
Specificity of screening test (men)	0.998	ClaSS ¹
Sensitivity of screening test (women)	0.973	ClaSS ¹
Specificity of screening test (women)	0.997	ClaSS ¹
Maximum time (days) since last sexual contact for partner to be considered recent	120	Assumption
Probability that partner will attend for treatment	0.45	ClaSS ^{1 10}
Delay (days) for partner to receive treatment	3	Assumption

ClaSS=chlamydia screening studies.

Screening tests are Cobas Amplicor CT test (Roche Diagnostics, Basel) on urine specimen for men and vulvo-vaginal swab for women.

Probability of partner attending for treatment applied independently to each partner.

was higher (see supplementary figure at www.chlamydia.ac.uk). Figure 1 presents the impact of screening on the individual outcomes over time. Pelvic inflammatory disease and neonatal complications were by far the most frequent outcomes.

Table 5 presents the results of screening under different scenarios up to eight years after the introduction of an annual invitation to be screened. We assumed that once introduced, the screening programme would continue indefinitely. In the base case, the incremental cost effectiveness ratio per major outcome averted for screening men and women, compared with no organised screening, after eight years, was approximately £28 900. It was less costly to screen women only but also less effective, and the incremental cost effectiveness ratio per major outcome averted was approximately £22 300.

Figure 2 shows the results for a range of time horizons from four to 20 years. The gradual fall in the incremental cost effectiveness ratios over time reflects the delay inherent in a screening programme in which a lag is seen before the full effect of the major outcomes averted as a result of screening becomes apparent.

In the sensitivity analysis when the response rate for men and women was equated to that found for women only, the incremental cost effectiveness ratio for screening men and women improved. The ratio improved further when the response rates were increased to 60% for women and 40% for men. Decreasing the screening interval to six months led to less favourable ratios. Two yearly screening gave a slightly lower incremental cost effectiveness ratio. Applying the discount rate for outcomes as recommended by the UK Treasury (1.5%) had a slightly more favourable effect on the incremental cost effectiveness ratio, as did not discounting outcomes at all. Including the person's private costs of screening, to adopt a societal perspective, increased the incremental cost effectiveness ratio for screening men and women to £41 300 per major outcome averted compared with no screening.

The assumptions surrounding the probability of developing pelvic inflammatory disease had the biggest single impact on the incremental cost effectiveness ratio. The cost applied to pelvic inflammatory disease in the base case was that for an episode needing inpatient treatment. When we used an estimated probability for developing pelvic inflammatory disease of 25%,¹⁵ and assumed that all cases were admitted to hospital, the incremental cost effectiveness ratio fell by almost half to £10 200 per major outcome averted. When we assumed that the probability of developing pelvic inflammatory disease was 25%, and that 10% of cases were treated in hospital and 90% treated in primary care,²⁰ the ratio increased to £12 000 per major

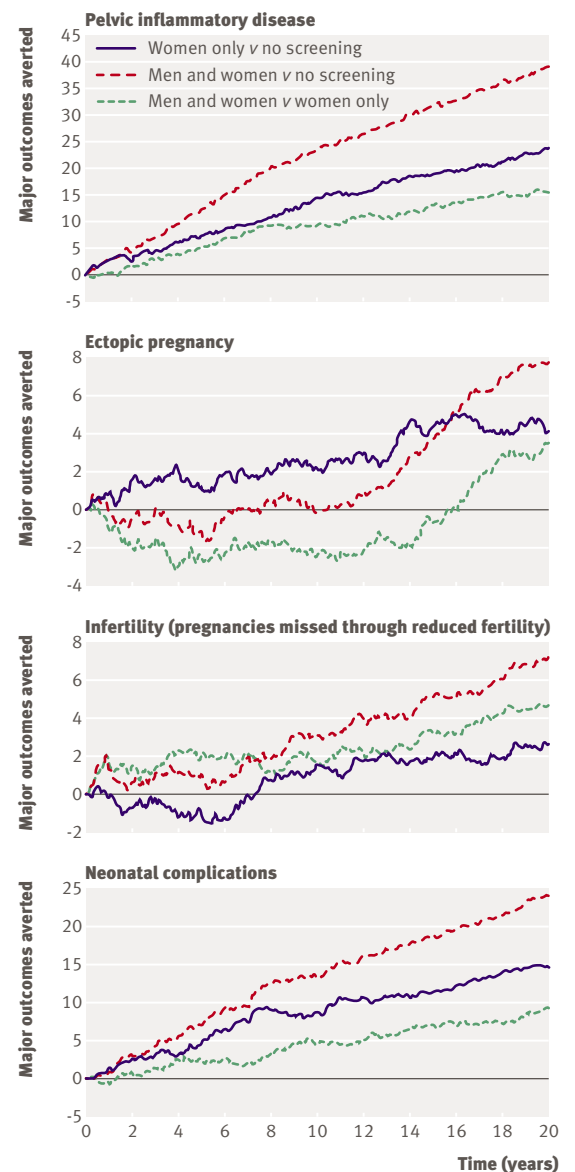


Fig 1 | Episodes of major outcomes averted by screening. In each diagram, cumulative outcomes refer only to those incurred up to given time for total simulated population (25 000 women initially, together with new female entrants as model was running)

outcome averted (table 5). The unit costs associated with other sequelae had to increase substantially to have a noticeable effect on the incremental cost effectiveness ratios. In the best case scenario for screening, which combined high uptake and high incidence of pelvic inflammatory disease, the incremental cost effectiveness ratio fell dramatically.

DISCUSSION

The results of this economic evaluation suggest that proactively offered register based screening for *C trachomatis* with home collected specimens is an expensive intervention, on the basis of levels of uptake achieved in our cross sectional survey and assuming that the incidence of chlamydia associated complications is lower than previously believed. No pre-defined accepted threshold for incremental cost effectiveness ratios in terms of major outcomes averted exists for decision makers, but this result is unlikely to be considered cost effective. We draw this conclusion from the incremental cost effectiveness ratios based on major outcomes averted, in which pelvic inflammatory disease is the most commonly avoided outcome.

Strengths and limitations

The main strength of our study is that we collected cost data prospectively alongside a series of empirical epidemiological and laboratory studies and used these in an individual level dynamic mathematical model that gave the closest approximation to the real sexual behaviour of the population. The limitations of the study include the complexity of the model and the fact that the results are based on a single set of assumptions about mixing of partners and background rates of opportunistic screening and thus represent only one plausible scenario. This scenario is consistent with empirical data, however, as the model was able to recapture the prevalence by age group observed in

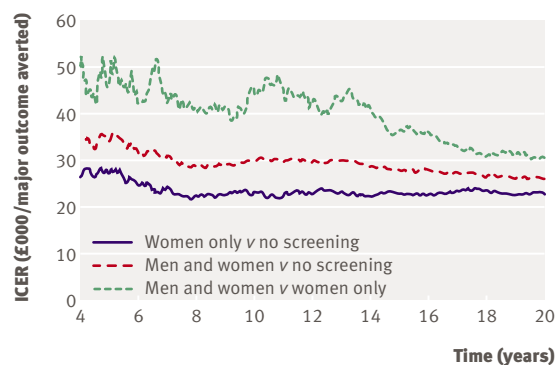


Fig 2 | Base case results over time. Incremental cost effectiveness ratio (ICER) based on costs incurred and outcomes observed up to specified time only

the chlamydia screening studies project. The large number of replications and the size of the hypothetical population also support the robustness of the model and the results. As the clinical parameters are the results of calibration to the empirical data observed in the chlamydia screening studies project, we could not produce 95% confidence intervals. The large number of runs of the model needed to produce estimates of uncertainty would reflect only randomness in the model and not parameter uncertainty.

Comparison with other studies

The structure and dynamics of our model are comparable to those on which the evaluation of the English national chlamydia screening programme is based.^{21 22} The assumptions about duration of infection, transmission, and symptoms have also been used to evaluate both proactive and opportunistic screening approaches in other studies using the model developed by Kretzschmar.^{12 15 23 24} The sensitivities and specificities of the tests obtained from laboratory based studies in the chlamydia screening studies project were higher than those reported by a recent meta-analysis.²⁵ This would improve the cost effectiveness of our screening intervention.

Our results contrast with the very low reported incremental cost effectiveness ratios per major outcome averted that have often been found in studies using static decision models.⁵ A fundamental difference is that our evaluation was based, appropriately, on a transmission dynamic model. The different results between static and dynamic models of chlamydia screening have been reported.²⁶ Three evaluations based on a similar dynamic model to ours found opportunistic and proactive screening to be cost effective.^{15 22 23} Two principal factors contribute to the differences in these results.

Firstly, the incidences of long term outcomes used in our model were based on population based cohort data from Sweden,¹⁴ which observed a lower incidence of complications than the clinic based estimates used by other studies.^{15 22-24} The most recent economic

Table 4 | Unit costs in model (2005)

Resource use data needed	Unit cost (£)	Source
Cost per screening invitation (including administration)	14.65	ClaSS ¹
Average private cost to people being screened	6.82	ClaSS ^{1 11}
Screening tests, men	7.72	ClaSS ¹
Screening tests, women	7.35	ClaSS ¹
Background screening tests, men	7.05	ClaSS ¹
Background screening tests, women	6.68	ClaSS ¹
Treatment of index case, including partner notification	25.12	ClaSS ¹
Treatment of partners	17.12	ClaSS ¹⁰
Infertility*	453	NICE guidelines ¹⁷
Ectopic pregnancy†	2456	HRG costs
Pelvic inflammatory disease‡	3014	HRG costs
Epididymitis	836	Welte§ ¹⁵
Neonatal complications	749	HRG costs

ClaSS=chlamydia screening studies; HRG=health resource groups; NICE=National Institute for Health and Clinical Excellence.

*NICE baseline costs for one cycle converted to 2005 costs.

†NICE baseline costs converted to 2005 costs.

‡Cost of treatment in hospital.

§Weighted average of Welte et al 2000,¹⁵ converted to 2005 UK costs.

evaluation, which used an individual based dynamic model to examine the opportunistic screening used in the national chlamydia screening programme in England, showed that screening was not cost effective when the incidence of pelvic inflammatory disease was less than 10%.²² In the base case, we included only severe pelvic inflammatory disease leading to hospital admission, because this was the most costly. If the incidence of mild pelvic inflammatory disease treated in primary care was very high, screening would become more cost effective. When we increased the incidence of pelvic inflammatory disease in the model to that typically used in other studies,¹⁵ and apportioned the associated costs between severe and mild disease, the incremental cost effectiveness ratio was lower. However, even at the higher incidence of pelvic inflammatory disease and assuming all cases to be severe, the ratio of £10 200 per major outcome averted is unlikely to be low enough for population screening for chlamydia to be considered cost effective. These sensitivity analyses did not affect the estimated incidence of ectopic pregnancy and infertility, which were incorporated independently in the model.

Secondly, the screening uptake rate used by other studies is typically higher than we found in the chlamydia screening studies project. One recent study used a combined uptake rate in men and women of 48%.²³ In the sensitivity analysis, we showed that a scenario that

assumed a similar uptake and a high incidence of pelvic inflammatory disease had a much more favourable incremental cost effectiveness ratio of £6200 per major outcome averted. The combined effect of higher uptake and higher probability of sequelae has been shown to reduce the incremental cost effectiveness ratio considerably.²²

Meaning of the study

The base case incremental cost effectiveness ratio suggests that screening women only, compared with no active screening, costs an additional £22 300 per major outcome averted. We were unable to present the incremental cost effectiveness ratios in terms of a cost per QALY, as the data available on quality of life associated with pelvic inflammatory disease and other sequelae were inadequate.^{5,18} UK decision makers suggest that programmes with an incremental cost effectiveness ratio of greater than £30 000 per QALY are unlikely to be accepted on cost effectiveness grounds.¹⁷ If we compare our incremental cost effectiveness ratio with the uppermost threshold of £30 000 per QALY gained, for proactive screening to be considered cost effective the value for each case of pelvic inflammatory disease avoided would have to be more than 0.74 of a QALY. In other words, having pelvic inflammatory disease would have to be considered equivalent to being in a state equal to death for almost nine months. Adams et al presented their results in terms of both cost per major outcome averted and cost per QALY based on the only available estimated quality adjusted life year weights.^{18,22} If we had used these same weights, our base case incremental cost effectiveness ratio expressed in terms of the incremental cost per QALY is likely to have been considerably more than £0.5 million per QALY.

Implications for research and policy

Our results are relevant to the national chlamydia screening programme. Our model could also be further refined to explore the importance of differential uptake of chlamydia screening and re-screening according to factors including socioeconomic deprivation and sexual behaviour. A future objective will be to provide a model that captures the most important human interactions influencing transmission and control of *Chlamydia*, while excluding unnecessary detail.²⁷

The programme costs of a proactive register based approach described in this study were similar to those estimated for opportunistic screening.^{11 12 22 28} Opportunistic screening programmes are also known to have problems with sustaining regular uptake over time,²² so the disappointing uptake of proactive screening might also apply to the future uptake of opportunistic screening. Evidence from the chlamydia screening studies project shows that a mixed model combining elements of opportunistic and systematic screening might achieve optimal coverage and uptake.²⁹ Future research should focus on rigorous evaluation in randomised controlled trials of the relative effectiveness and cost effectiveness of alternative strategies to improve

Table 5 | Summary of incremental cost effectiveness ratios after eight years

Scenario	Incremental cost effectiveness ratios (£/MOA)		
	Women only v no screening	Men and women v no screening	Men and women v women only
Base case*, outcomes discounted at 3.5% (NICE)	22 300	28 900	41 300
Equal response rate 39%	22 300	25 200	28 900
Response 60% women, 40% men	18 200	22 400	29 300
Six monthly screening	29 800	34 200	40 400
Two yearly screening	19 600	27 100	44 000
Base case, outcomes discounted at 1.5% (UK Treasury)	20 600	26 600	37 900
Base case, outcomes not discounted	19 300	24 900	35 400
Incidence of PID=0.25, equivalent to Welte et al ¹⁵	10 200	12 200	15 200
PID 25%; response rate 60% women, 40% men	6 200	9 400	17 000
Including private patient costs of attending for screening†	31 800	41 300	59 300
Adjustment in unit costs applied to sequelae			
PID £30 (based on outpatient visit and course of antibiotics)‡	23 700	33 600	43 600
PID £30, infertility £3014 (based on intensive inpatient IVF treatment)‡	23 600	30 500	43 400
PID and infertility £3014†	22 200	28 800	41 100
Omit complication costs†	24 300	31 200	44 100
All complications £3014†	21 100	27 300	39 000
All complications £6028†	17 900	23 400	33 800
Incidence equivalent to Welte, PID cost average £328‡	12 000	14 100	17 200

IVF=in vitro fertilisation; MOA=major outcome averted; NICE=National Institute for Health and Clinical Excellence; PID=pelvic inflammatory disease.

All results presented from perspective of NHS, with exception of "Including private patient costs of attending for screening."

*Base case response rate=39% women, 29% men.

†All other parameters as base case.

‡Assumes 10% of cases are severe and cost £3014 each, other 90% of cases cost £30 each.

WHAT IS ALREADY KNOWN ON THIS TOPIC

Most published economic evaluations that have shown chlamydia screening to be cost effective have used static models that are inappropriate for evaluating an infectious disease

WHAT THIS STUDY ADDS

Proactively organised register based chlamydia screening using home collected specimens is not cost effective if the uptake of screening and the incidence of complications are lower than generally assumed

The cost effectiveness estimates were sensitive to assumptions about the incidence of major outcomes and uptake of screening but not to reasonable variation in the associated costs alone

the uptake and regularity of chlamydia screening. More reliable data about the long term sequelae associated with chlamydia are also needed to reduce the uncertainty associated with this parameter in future modelling studies. Value for money of screening programmes crucially depends on the values attributed to the adverse outcomes averted by screening, and these should be the subject of explicit public debate. Our evaluation of proactive population chlamydia screening, using a dynamic model incorporating realistic estimates of partner notification, the uptake of screening, and the incidence of severe complications, has shown it to be an expensive intervention that probably does not represent good value for money.

Participating individuals and institutions can be viewed at www.chlamydia.ac.uk.

Contributors: TER, JM, ME, and NL contributed to the design of the chlamydia screening studies (ClASS) project and obtained funding. TER designed the economic evaluation for the study, was chair of the ClASS Economics Working Group and prepared the manuscript as the lead writer. SR was principal economic researcher for the project and, with TER, was responsible for collating the primary data. PMB constructed and developed the transmission dynamic model and carried out the analysis using the model. SB advised on the economic evaluation. AMcC was the project manager. JM led Birmingham based aspects of ClASS fieldwork. NL was acting principal investigator and helped to revise the manuscript. ME was principal investigator of the ClASS project. All authors were members ClASS Economics Working Group. All authors commented on and approved the final manuscript. TR is the guarantor.

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