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[Intervention Review]

# Screening for genital chlamydia infection

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## ABSTRACT

### Background

Genital infections caused by *Chlamydia trachomatis* are the most prevalent bacterial sexually transmitted infection worldwide. Screening of sexually active young adults to detect and treat asymptomatic infections might reduce chlamydia transmission and prevent reproductive tract morbidity, particularly pelvic inflammatory disease (PID) in women, which can cause tubal infertility and ectopic pregnancy.

### Objectives

To assess the effects and safety of chlamydia screening versus standard care on chlamydia transmission and infection complications in pregnant and non-pregnant women and in men.

### Search methods

We searched the Cochrane Sexually Transmitted Infections Group Specialised Register, the Cochrane Central Register of Controlled Trials (CENTRAL), MEDLINE, EMBASE, LILACS, CINAHL, DARE, PsycINFO and Web of Science electronic databases up to 14 February 2016, together with World Health Organization International Clinical Trials Registry (ICTRP) and ClinicalTrials.gov. We also handsearched conference proceedings, contacted trial authors and reviewed the reference lists of retrieved studies.

### Selection criteria

Randomised controlled trials (RCTs) in adult women (non-pregnant and pregnant) and men comparing a chlamydia screening intervention with usual care and reporting on a primary outcome (*C. trachomatis* prevalence, PID in women, epididymitis in men or incidence of preterm delivery). We included non-randomised controlled clinical trials if there were no RCTs for a primary outcome.

### Data collection and analysis

Two review authors independently assessed trials for inclusion, extracted data and assessed the risk of bias. We resolved disagreements by consensus or adjudication by a third reviewer. We described results in forest plots and conducted meta-analysis where appropriate using a fixed-effect model to estimate risk ratios (RR with 95% confidence intervals, CI) in intervention vs control groups. We conducted a pre-specified sensitivity analysis of the primary outcome, PID incidence, according to the risks of selection and detection bias.

### Main results

We included six trials involving 359,078 adult women and men. One trial was at low risk of bias in all six specific domains assessed. Two trials examined the effect of multiple rounds of chlamydia screening on *C. trachomatis* transmission. A cluster-controlled trial in women and men

in the general population in the Netherlands found no change in chlamydia test positivity after three yearly invitations (intervention 4.1% vs control 4.3%, RR 0.96, 95% CI 0.84 to 1.09, 1 trial, 317,304 participants at first screening invitation, low quality evidence). Uptake of the intervention was low (maximum 16%). A cluster-randomised trial in female sex workers in Peru found a reduction in chlamydia prevalence after four years (adjusted RR 0.72, 95% CI 0.54 to 0.98, 1 trial, 4465 participants, low quality evidence).

Four RCTs examined the effect of chlamydia screening on PID in women 12 months after a single screening offer. In analysis of four trials according to the intention-to-treat principle, the risk of PID was lower in women in intervention than control groups, with little evidence of between-trial heterogeneity (RR 0.68, 95% CI 0.49 to 0.94, $I^2$ 7%, 4 trials, 21,686 participants, moderate quality evidence). In a sensitivity analysis, the estimated effect of chlamydia screening in two RCTs at low risk of detection bias (RR 0.80, 95% CI 0.55 to 1.17) was compatible with no effect and was lower than in two RCTs at high or unclear risk of detection bias (RR 0.42, 95% CI 0.22 to 0.83).

The risk of epididymitis in men invited for screening, 12 months after a single screening offer, was 20% lower risk for epididymitis than in those not invited; the confidence interval was wide and compatible with no effect (RR 0.80, 95% CI 0.45 to 1.42, 1 trial, 14,980 participants, very low quality evidence).

We found no RCTs of the effects of chlamydia screening in pregnancy and no trials that measured the harms of chlamydia screening.

**Authors' conclusions**

Evidence about the effects of screening on *C. trachomatis* transmission is of low quality because of directness and risk of bias. There is moderate quality evidence that detection and treatment of chlamydia infection can reduce the risk of PID in women at individual level. There is an absence of RCT evidence about the effects of chlamydia screening in pregnancy.

Future RCTs of chlamydia screening interventions should determine the effects of chlamydia screening in pregnancy, of repeated rounds of screening on the incidence of chlamydia-associated PID and chlamydia reinfection in general and high risk populations.

## PLAIN LANGUAGE SUMMARY

**Effects of screening for sexually transmitted chlamydia infection**

**Review question**

We reviewed the evidence about the effects ans safety of screening to detect and treat chlamydia infection in women and men.

**Background**

*Chlamydia trachomatis* is a common sexually transmitted infection. In several countries, about 3%-5% of sexually active adults aged 15 to 25 years have chlamydia at any given time. Untreated infections can lead to complications, including fertility problems in women and testicular inflammation in men. Screening to identify and treat people who are unknowingly infected might reduce the risk of complications and transmission to others.

**Study characteristics**

The evidence is up to date as of February 2016. We found six trials involving 359,078 adult women and men in Denmark, the Netherlands, Peru, the UK and the United States. Two trials examined the effect of chlamydia screening on levels of chlamydia infection. In the Netherlands, investigators invited women and men aged 15 to 29 every year for three years to have a chlamydia test. In Peru, mobile teams visited 20 cities to offer women sex workers tests for chlamydia over a period of four years.

**Key results**

With regard to the level of chlamydia infection, in the Netherlands there was no difference in women and men who had been invited to have yearly chlamydia screening tests compared with women and men who received only one invitation. Only 16% of those invited to be screened had a test in the first year and only 10% had a test in the third year. In Peru, female sex workers in cities with mobile teams had lower levels of chlamydia infection than those in cities without mobile teams.

Four trials provided comparable data on PID. The risk of PID was 32% lower in women who were invited to have a single chlamydia screening test than in women who were not invited. When we removed two trials with lower quality evidence, the protective effect of chlamydia screening decreased. I was found no effect on epididymitis in men.

**Quality of the evidence**

The effect of register-based chlamydia screening on *C. trachomatis* transmission in young adults in the general population is uncertain. We are moderately sure that chlamydia screening can reduce the risk of PID, but we are not sure by how much because of our concerns about quality in some trials.