

# Can I still get pregnant?

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## Impact paragraph

*Chlamydia trachomatis* (hereafter referred to as 'chlamydia') is the most common bacterial sexually transmitted infection (STI) among young women. The infection can result in pelvic inflammatory disease (PID), leading to severe complications, such as prolonged time to pregnancy, ectopic pregnancy, and tubal factor infertility. The natural history of chlamydia has been studied for decades, but questions remain and challenges in studying the natural history of chlamydia are not easily resolved. The risk of and risk factors for complications following a chlamydia infection had not been assessed in a long-term prospective cohort study. Therefore, the Netherlands Chlamydia Cohort Study was set up to estimate the risk and risk factors for these reproductive tract problems in women with and without a previous chlamydia infection. Almost 6,000 women participated and were followed for five to ten years. We found that having had a chlamydia infection increased the risk for PID and tubal factor infertility by two to four times and slightly increased the time to pregnancy when compared to women without a previous chlamydia infection. However, complications following chlamydia infections were rare; PID was found in five percent and tubal factor infertility only in one percent of chlamydia positive women. Furthermore, the overall pregnancy chances were similar for women with and without a previous chlamydia infection.

These conclusions together with the set up of the cohort helped in estimating more robust risk estimates for late complications following chlamydia infections. The longitudinal cohort design; building on a previous study (from 2008-2011 that included 60,000 women), long-term follow-up (>ten years) and the extensive manner in which previous chlamydia infections was determined overcome many limitations previously mentioned in studies estimating the risk for late complications following chlamydia infections. Moreover, the results are supportive and contribute highly to the discussion of a new proposed chlamydia control approach concerning testing and treating infections: *shifting the focus from preventing chlamydia infections to preventing chlamydia complications*. The reason for extensive chlamydia testing is primarily to prevent the spread of chlamydia infections by interfering transmission and to prevent women from severe complications related to a chlamydia infection. But despite a sharp increase in chlamydia testing over the past decades, chlamydia background prevalence remained similar over the last twenty years. PID, ectopic pregnancy and tubal factor infertility is not monitored in a standard and frequent manner, which makes it difficult to assess if the current chlamydia control results in less cases of PID, ectopic pregnancies or tubal factor infertility. In some ecological studies a decline in PID or ectopic pregnancy cases was seen, however declines in these outcomes were also seen in countries with minimum or no systematic chlamydia screening. This information combined with the results from the thesis, which showed low risks for complications, do not support extensive (and therefore expensive) chlamydia testing.

A shift in chlamydia control approach from preventing chlamydia infections to preventing chlamydia complications will have a major impact. Extensive chlamydia testing can be shifted to more targeted chlamydia testing. Targeted testing will be based on risk factors that identify women at highest risk of chlamydia related complications. These risk factors can be based on demographics, infection characteristics, immunological factors and genetic factors. This thesis provides several risk factors

related to an increased or decreased risk for late complications. When these risk factors can be confirmed and when in future a validated prognostic model will be available, the number of chlamydia tests and treatments will decline drastically and with it the costs. Besides the economic impact the shift will have, it will also have a significant social impact. In the current chlamydia control strategy several risk groups are being tested and treated free of charge. If a shift will be made to only targeted testing for women at high risk for late chlamydia complications, than the criteria and advise for chlamydia testing will change. There will be a lesser need to test boys and men for an infection. And probably many women will not be tested either. Communication will be key during a shift in chlamydia control, in which the low complication rates and similar pregnancy chances for women with and without previous infections will be reassuring for both health care professionals and for girls and women tested positive for chlamydia.

Targeted testing can only be effective if a clear distinction between women with and without high risk for late complications can be made. The Netherlands Chlamydia Cohort Study is further funded until 2025 in which the overall aim is to develop a prognostic tool by which high risk women can be identified. This tool will be piloted to test acceptability and feasibility in which all important stakeholders will be involved. The ultimate aim is to increase effectiveness and efficiency of chlamydia control activities, targeted at high risk women to control chlamydia related complications.