Reviewer's report

Title: Optimizing Strategies for Population-based Chlamydia Infection Screening among Young Women: An Age-Structured System Dynamics Approach

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Reviewer: Alberto Matteelli

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This article describes a mathematical model to define, in terms of cost-effectiveness, the optimal age to start screening for genital C. trachomatis infection, as well as the optimal frequency of screening.

The authors used a validated model for the natural history of C. trachomatis infection and have adapted it by including age-structured compartments, to predict the effect of systematic screening and treatment on prevalence, morbidity, and costs. They propose that starting screening six months after the age of 14 and repeating it every 8 months till the age of 25 is cost-effective compared to current CDC recommended practices.

The topic is important. However, in general, the authors use a language which is difficult to appraise for the average medical reader. The current model they propose, which does not include behavioural variables, make little sense to the health practitioner: for example, the existing recommendation to start screening as early as the debut of sexual activity seems more rationale than starting for all girls at a given age. In addition, re-screening every 8 months in girl with monogamous partnership or who even interrupted sexual activity is likely to be ineffective.

The effect of screening after the age of 25, which is also a source of debate, is neglected in the model.