

**Title** Screening for Chlamydia Trachomatis and Neisseria Gonorrhoeae During Pregnancy: A Health Technology Assessment

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### Aim

The objective of this Health Technology Assessment (HTA) was to inform the decision on how Canadian health care providers should screen pregnant persons for Chlamydia trachomatis (CT) and/or Neisseria gonorrhoeae (GC). The HTA assessed the clinical effectiveness, safety, cost-effectiveness, and perspectives and experiences of pregnant persons, partners, and health care providers regarding the screening of pregnant persons for CT and GC during pregnancy.

### Conclusions and Results

The HTA found that universal screening at entry into prenatal care and at another time point during pregnancy results in the highest detection yield and provides the most health benefits compared with any other screening strategies. The economic analysis suggests that the trade-off that exists between the expected costs and clinical benefits among different screening strategies was most sensitive to the potential harms associated with the outcomes of developing an infection. Although universal screening in the first and third trimesters was found to be the costliest strategy, it generated the greatest amount of health. The incremental gain in health associated with this strategy compared with other screening strategies was dependent on the potential magnitude of harm from undiagnosed CT and GC infections and the costs associated with managing such infections. The universal strategy also aligns with the perspectives and experiences of pregnant persons, their partners, and health providers, as it has the potential to minimize stigma and discrimination — important psychosocial factors that influence screening behaviours.

### Methods

To assess clinical effectiveness and safety, a systematic review of the literature was conducted, including an assessment of the overall quality of the body of evidence using the Grading of Recommendations Assessment, Development, and Evaluation (GRADE) framework. For the economic analysis, a review of the literature was conducted to identify relevant economic evaluations that assessed the cost-effectiveness of strategies for the screening of CT and GC infections during pregnancy. A decision-analytic model was constructed to facilitate the comparisons between the clinical outcomes (quality-adjusted life-years) and costs associated with the screening of CT and GC infection in pregnancy to both the pregnant person and the infant, from the first trimester of pregnancy up to the postpartum period (i.e., 19 weeks after birth or stillbirth). Given uncertainties regarding a number of model parameters and assumptions, including the natural history of CT and GC infection and the variability in current screening practice and clinical management, sensitivity analyses were conducted. Exploratory analyses were also conducted to explore the impact of considering the potential long-term clinical impacts of infection such as blindness to the offspring and pelvic inflammatory disease to the birthing parent, and the potential association between infection in the pregnant person and adverse obstetric outcomes. For perspectives and

experiences of pregnant persons, partners, and health care providers, a systematic review and qualitative meta-synthesis of empirical studies describing pregnant persons' experiences and perceptions of screening for sexually transmitted infections (STIs) during pregnancy was conducted. The scope of this section of the review was expanded to include screening for other STIs (such as HIV) during pregnancy, in order to ensure a sufficient evidence base. A quality assessment of the included studies was conducted using validated tools.

### Further Research/Reviews Required

Future research for comparing detection yield between screening strategies could include screening one group of pregnant persons in the first trimester only while screening a different group in the third trimester only. Alternatively, given the challenge of conducting studies for all screening strategies of interest, there may be value in developing linked evidence models that incorporate data on the diagnostic accuracy of tests with both the clinical decision-making impact of a test result and the subsequent effectiveness of the available treatment options in order to better understand the clinical utility of a screening test, and more broadly, of a screening program. Given that Canada is a low-prevalence society, further studies are required that explore the impact of differing screening strategies in low-prevalence populations, particularly with respect to false-positive results, the experiences and perspectives of sexual partners, and the screening strategies' cost-effectiveness. Further studies are also required to explore the harms of varying screening strategies during pregnancy as no related evidence was identified in this review. Understanding baseline screening rates for STIs during pregnancy across the provinces would allow for an assessment of the effectiveness of future changes to policies involving screening interventions. The challenges to collecting data on screening strategies, however, must be acknowledged. In particular, enrolling an adequate number of pregnant persons and/or their partners and health care providers to ensure sufficient statistical power to detect differences in outcomes is challenging. Relatedly, the number of factors that influence screening behaviour, and outcomes, likewise suggests that a large number of participants will be needed to ensure the findings are generalizable to the population.

### Written By

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