Urine Specimens in Diagnosing Chlamydia in Women

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Summary and conclusions

Chlamydia is by far the most commonly reported sexually transmitted infection (STI) in Sweden. It is mandatory to report all new cases to the Swedish Institute for Infectious Disease Control and to the county council's physician in charge of infectious disease control. Chlamydia is transmitted through unprotected sexual contact. Most people infected do not present obvious symptoms. Untreated, chlamydia can lead to permanent lesions and infertility.

In women, chlamydia can be diagnosed by analyzing cervical, vaginal, or urine specimens. Women can collect vaginal and urine specimens themselves.

SBU's appraisal of the evidence

- Urine specimens are somewhat less sensitive (ie, miss more cases) than vaginal and cervical specimens. Vaginal specimens have the highest sensitivity for diagnosing chlamydia in women.
- Urine, vaginal, and cervical specimens have similar specificity. In other words, they are equally likely to yield a correct, ie, negative, finding in women who are not infected.
- The scientific evidence is insufficient to compare the diagnostic accuracy of urine specimens alone versus various combinations of specimens, since only one study in the assessment included such a comparison.
- The scientific evidence is insufficient to draw conclusions on the cost-effectiveness of using urine specimens as the only test for establishing a chlamydia diagnosis in women. Too few studies of sufficient quality are available. The total cost of chlamydia testing is influenced mainly by how specimens are taken. Vaginal and urine specimens can be collected by the patient herself. This lowers the cost in comparison to taking cervical specimens, where health professionals must collect the specimen.

Technology and target group

Chlamydia often affects young people. In women, untreated chlamydia can lead to pelvic inflammatory disease, which can cause permanent damage to the fallopian tubes and create risks for sterility and ectopic pregnancy. The infection can be transmitted from mother to child through childbirth, leading to eye infection or pneumonia in the child.

In Sweden, chlamydia testing is offered in suspected cases, but sexually active individuals not directly suspected of infection are also offered screening tests when they are in contact with health services (ie, opportunistic screening). In women, chlamydia has been diagnosed primarily by using a combination of specimens from the urethra and cervix, or a combination of urine specimens and cervical specimens. This requires a gynecological examination.

Diagnostic advancements in chlamydia have progressed rapidly in recent years, and it has become increasingly common to use vaginal specimens alone, or urine samples alone. Both of these methods offer the option of self-collection of specimens. This could be a way to increase chlamydia testing, particularly among younger women who might otherwise fail to provide specimens. However, it is uncertain whether urine samples alone yield sufficiently high diagnostic accuracy in diagnosing chlamydia in women.

Primary questions

- What is the diagnostic accuracy of urine samples alone compared to cervical specimens, vaginal specimens, or combinations of specimens in diagnosing chlamydia in women?
- What does it cost to diagnose chlamydia by using urine samples alone? What is the cost-effectiveness of the method?

Patient benefit

- ❑ Urine specimens yield somewhat lower sensitivity than vaginal and cervical specimens (Evidence grade 3)*.
- ❑ Specificity is similar for urine, vaginal, and cervical specimens (Evidence grade 3)*.

❑ The scientific evidence is insufficient* to compare the diagnostic accuracy of urine specimens versus a combination of specimens.

This assessment included 6 studies, all of which were judged to be of medium quality [14–19]. Populations studied were women with and without symptoms of chlamydia. The studies reported a range of 4.1% to 50% in the prevalence of chlamydia.

The studies compared urine specimens versus cervical or vaginal specimens from the same woman. SDA or PCR[1] methods were used to analyze the samples. The reported sensitivity for detecting chlamydia ranged between 85% and 95.5% for urine specimens and between 87% and 97% for cervical specimens. Four of the studies also analyzed the sensitivity of vaginal specimens, which ranged between 95.5% and 97%. One of the studies analyzed the sensitivity of combined urine and vaginal specimens, which was 95%. Specificity was similar (95% or higher) for urine, cervical, and vaginal specimens.

Economic aspects

❑ The scientific evidence is insufficient* to draw conclusions on the cost-effectiveness of using urine specimens alone to diagnose chlamydia in women, since there are too few studies of sufficient quality.

Analysis cost is approximately 200 Swedish kronor (SEK) per test regardless of specimen type. The total cost of chlamydia testing is influenced mainly by the method of specimen collection. Urine and vaginal specimens collected by patients themselves show a similar cost. Cervical specimens are more expensive since they must be collected by a healthcare professional.

[1] *Strand displacement amplification (SDA), polymerase chain reaction (PCR).*

** Criteria for evidence grading SBU's conclusions;*
Evidence grade 1 – Strong scientific evidence. The conclusion is corroborated by at least two independent studies with high quality, or a good systematic overview.
Evidence grade 2 – Moderately strong scientific evidence. The conclusion is corroborated by one study with high quality, and at least two studies with medium quality.
Evidence grade 3 – Limited scientific evidence. The conclusion is corroborated by at least two studies with medium quality.
Insufficient scientific evidence – No conclusions can be drawn when there are not any studies that meet the criteria for quality.
Contradictory scientific evidence – No conclusions can be drawn when there are studies with the same quality whose findings contradict each other.

Project group

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This assessment was published in 2010. Findings based on strong scientific evidence usually continue to apply well into the future. However, findings based on insufficient, limited, or contradictory evidence might have already been replaced by more recent findings.

The complete report is available in Swedish.

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