

# Cost-Effectiveness of Nucleic Acid Amplification Testing to Guide Treatment for Vaginitis: A Decision-Modeling Analysis

## Background

- Vaginitis is a common gynecological condition that can be caused by bacterial vaginosis (BV), vulvovaginal candidiasis (VVC), or *Trichomonas vaginalis* (TV).<sup>1</sup>
- Identifying the cause of vaginitis is important for appropriate treatment.
- Identification methods include clinical and microscopic examination (CME), nucleic-acid-amplification testing (NAAT), and non-amplified nucleic-acid probe (probe) testing. Accuracy and cost of these methods vary.
- Comparing the cost-effectiveness of the methods could help healthcare providers decide which method to use. Previous studies that compared methods have some weaknesses, such as nonrandomization or incomplete insurance data.
- **Objective:** Investigators of this study used a decision-modeling analysis to compare the cost-effectiveness of various testing scenarios based on CME, NAAT, and probe testing.

## Methods

- The hypothetical study population was 1,000 women  $\geq 18$  years old.
- Models were developed that included the following:
  - Primary outcomes: resolution of symptoms and costs to a US health plan
  - Inputs (based on published literature): prevalence of BV, VVC, and TV; diagnostic sensitivity and specificity of the methods; rate of indeterminate test results; treatment efficacy; costs of first physician visit, testing, treatment, and 1st follow-up visit if symptoms are unresolved
- Outcomes for the following situations were compared:
  - NAAT vs probe testing
  - CME alone vs NAAT or probe testing following a negative or indeterminate CME results
- The incremental cost-effectiveness ratios (ICERs) per additional patient with symptom resolution were also calculated for the scenarios.

## Results

- NAAT vs probe test-and-treat scenario
  - NAAT provided symptom resolution in 140 more patients per 1,000 tested than probe testing: 615 vs 475.
  - The additional 140 resolutions would cost \$210 each (ie, ICER was \$210 per additional patient with symptom resolution).
  - The average cost was \$720 for NAAT and \$871 for probe testing; thus, NAAT was below the willingness-to-pay threshold (defined as the cost of probe testing, which is covered by insurance).
- CME followed by NAAT or probe testing vs CME alone
  - CME followed by NAAT provided symptom resolution in 650 patients per 1,000, which was more than CME alone (525) or CME followed by probe testing (602).
  - The additional 48 resolutions would cost \$284 each (ie, ICER for CME followed by NAAT vs followed by probe testing was \$284 per additional patient with symptom resolution).
  - The average cost was \$574 for CME followed by NAAT, \$597 for CME followed by probe testing, and \$671 for CME alone; thus, CME followed by NAAT was below the willingness-to-pay threshold (defined as the cost of CME alone, which is covered by insurance).

## Conclusions

- According to these models, the use of NAAT will increase the number of patients with resolved symptoms at a cost that is below the willingness-to-pay threshold.

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### Webpage

<https://pubmed.ncbi.nlm.nih.gov/32683205/>

### Reference

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