Understanding Aerobic Vaginitis (AV): A Guide for Clinicians

Improving Diagnostic Accuracy Through Molecular Testing

What Is Aerobic Vaginitis (AV)?

Aerobic Vaginitis (AV) is a form of vaginal dysbiosis that differs from the more commonly recognized Bacterial Vaginosis (BV). AV is characterized by inflammation and an overgrowth of aerobic bacteria that disrupt the normal vaginal flora.

Typical clinical signs and features include:

- Vaginal inflammation and irritation
- Yellowish discharge
- Elevated vaginal pH (>4.5, often >6.0)
- Depletion of protective *Lactobacillus* species

Proliferation of aerobic bacteria such as:

- *Escherichia coli (E. coli)*
- Group B Streptococcus (GBS)
- *Staphylococcus aureus*
- *Enterococcus faecalis*

PCR Detection vs. Diagnosis: Understanding the Difference

Detection involves identifying one or more AV-associated bacteria through molecular testing. However, laboratory diagnosis requires a more nuanced interpretation.

To confirm a PCR diagnosis of AV, both of the following conditions must be met:

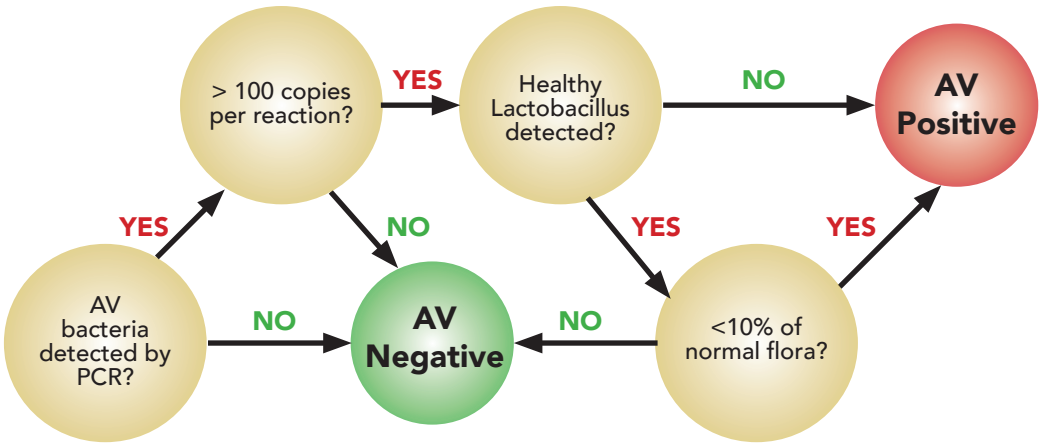
1. AV-associated pathogens (e.g., *E. coli*, GBS, *S. aureus, E. faecalis*) must be detected at significant levels (≥ 100 copies per reaction),

AND

2. Healthy *Lactobacillus* species - such as *Lactobacillus crispatus, L. jensenii,* and *L. gasseri* - must be either undetectable or present at <10% of the total vaginal flora.

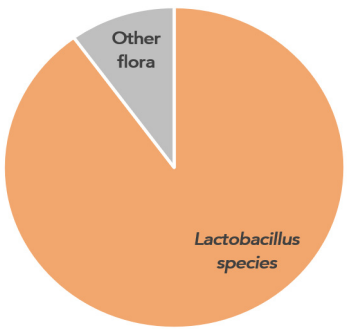
A positive test for a single AV pathogen alone is not sufficient for an AV diagnosis.

AV Decision Guide:



Scenario A

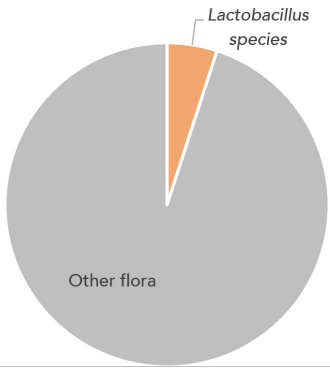
PCR	Flora
E. coli 500 copies/rxn	*Lactobacillus* species 90%



Specimen A is Negative

Scenario B

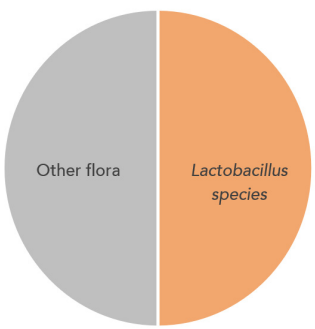
PCR	Flora
E. coli 15,000 copies/rxn	*Lactobacillus* species 5%



Specimen B is Positive

Scenario C

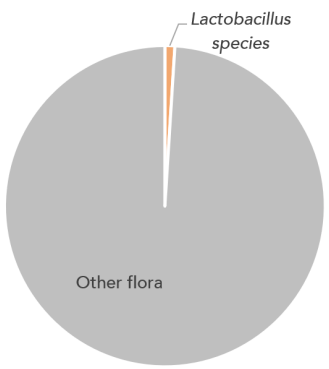
PCR	Flora
E. faecalis 500 copies/rxn GBS 1,000 copies/rxn	*Lactobacillus* species 50%



Specimen A is Negative

Scenario D

PCR	Flora
E. faecalis 500 copies/rxn GBS 1,000 copies/rxn	*Lactobacillus* species 1%



Specimen B is Positive

Over for Additional Content

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Clinical Considerations: Mixed Flora and Borderline Results

In some patients, both aerobic pathogens and healthy Lactobacilli may be elevated, leading to ambiguous results. These "mixed flora" or "borderline" findings require additional clinical correlation.

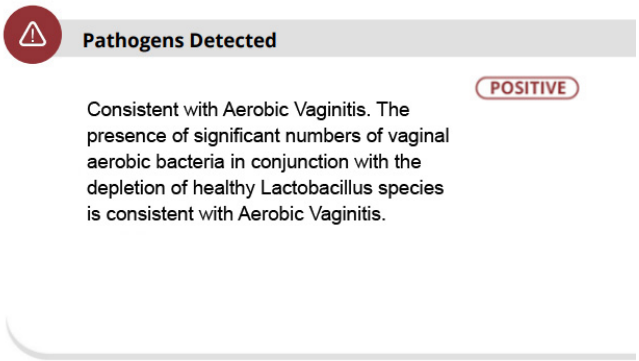
When evaluating borderline AV results, consider the following:
- Presence and severity of symptoms (e.g., discharge, odor, irritation)
- Measured vaginal pH
- Repeat testing if necessary for confirmation

This comprehensive approach reduces the risk of misdiagnosis and supports more targeted treatment decisions

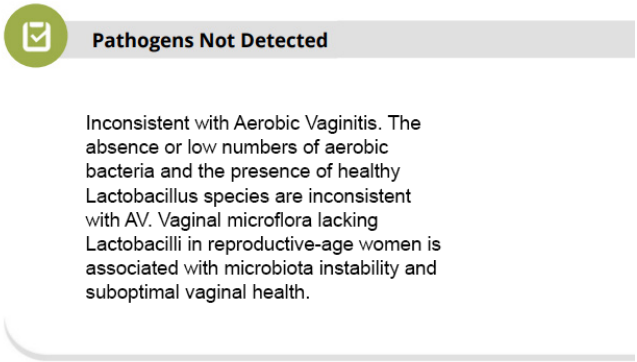
Reporting Guidelines for Physicians

To assist with clinical decision-making, results are reported with interpretive comments:

AV POSITIVE
Example comment:



AV NEGATIVE
Example comments:



Why Relative Abundance Matters

The key to accurate AV diagnosis lies not in the mere presence of specific bacteria but in the balance between pathogenic and protective species. High levels of aerobic bacteria may not indicate disease in a flora dominated by Lactobacilli.

Key concepts:

- ✓ Healthy Lactobacillus dominance helps prevent overgrowth of harmful aerobic bacteria.
- ✓ AV-associated bacteria can be present in asymptomatic individuals without indicating infection.
- ✓ The relative abundance of organisms provides a clearer picture of vaginal ecosystem health.

In Summary: What Clinicians Should Know

- An AV diagnosis requires *BOTH*:
  - o Elevated levels of AV-associated aerobic bacteria
  - o Depletion of protective *Lactobacillus* species
- The presence of a single pathogen alone ≠ AV
- Relative abundance and context are critical for accurate diagnosis and appropriate treatment