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### Bacterial Vaginosis

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# Bacterial Vaginosis

## Introduction

Bacterial vaginosis (BV) is described as a dysbiosis, or a microbial imbalance in the normal vaginal flora. Anaerobic pathogenic bacteria outgrow the normal, protective lactobacilli leading to symptoms of abnormal vaginal discharge and malodor (Muzny & Schwabke, 2016).

BV affects 21 million women in the United States alone (Bagnall & Rizzolo, 2017). It is the most common vaginal disorder in women ages 15 to 44 years (Centers for Disease Control and Prevention [CDC], 2017).

Serious complications from BV include preterm labor, pelvic inflammatory disease, postoperative infections and increased risk for acquiring sexually transmitted infections (STIs), including HIV (Bagnall & Rizzolo, 2017; Machado & Cerca, 2015).

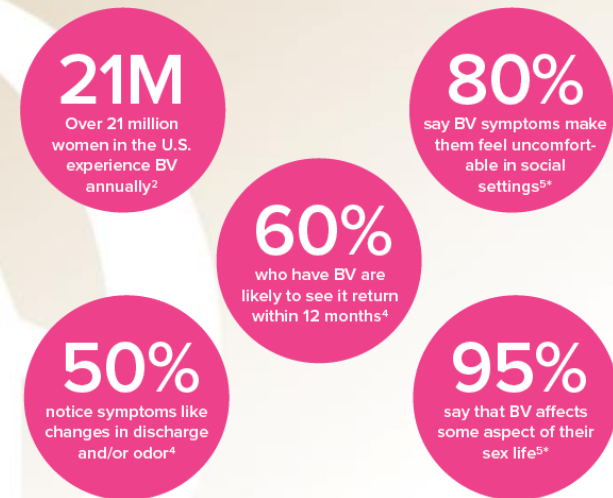
50% of women treated for BV have recurring symptoms within 12 months (Bagnall & Rizzolo, 2017).

Risk factors for BV include:

- Black or Hispanic ethnicity
- Douching
- Use of vaginal deodorants
- Smoking
- New or multiple sex partners (SPs)
- Lack of condom use
- Women who have sex with women (Bagnall & Rizzolo, 2017).

## Importance of Topic

The advanced practice nurse (APN) should have significant understanding of this disorder since it is so prevalent and recurring among the female population. It has been noted by a public health nurse employed at a sexual health clinic that many female patients diagnosed with BV, either for the first time or recurrently, are unaware of the risk factors and methods of prevention. It is important for future clinicians to be knowledgeable on the risk factors, diagnostic criteria and most current treatment so that patients with BV are appropriately treated and educated to prevent recurrences or serious complications.



From Lupin Pharmaceuticals. (2018). Retrieved from <https://www.keeperawesome.com/bacterial-vaginosis>

## Underlying Pathophysiology

Normal vaginal flora is predominated by lactobacilli that produce hydrogen-peroxide and lactic acid, creating an acidic environment that is inhospitable to invading bacteria (Machado & Cerca, 2015).

Lactobacilli also secrete antimicrobial substances that have bactericidal activity or prevent the adhesion of other microbes to the vaginal epithelial surface (Parma, Stella Vanni, Bertini, & Candiani, 2014).

In BV, the normal flora is replaced by *Gardnerella vaginalis* which leads to an alkaline environment (Bagnall & Rizzolo, 2017).

*G. vaginalis* possesses 3 virulence factors that contribute to its pathogenicity in BV: ability to adhere to vaginal epithelial cells, biofilm production, and cytotoxicity (Machado & Cerca, 2015).

*G. vaginalis* produces a biofilm on the epithelial surface which serves as a platform for other pathogenic bacteria to adhere to. This biofilm also protects the pathogens by hindering antibiotic penetration (Bagnall & Rizzolo, 2017).

Diagnostic criteria for BV includes the presence of clue cells in vaginal secretions. Clue cells are desquamated biofilm-coated epithelial cells (Machado & Cerca, 2015).

## Significance of Pathophysiology

There are several hypotheses on the pathogenesis of bacterial vaginosis, however, the exact cause or mechanism that leads to the microbial shift characteristic of BV is unknown (Muzny & Schwabke, 2016).

Continued research is imperative for the development of more efficacious treatments and improved patient education and prevention.

Knowledge of the pathogenicity of *G. vaginalis* can be used to create new medications targeting this microbe which appears to be the primary invader in BV.

Research suggests that BV is an STI (Bagnall & Rizzolo, 2017; Muzny & Schwabke, 2016). However, the Centers for Disease Control and Prevention (CDC) does not classify BV as an STI, nor does it recommend treatment for male partners of BV-positive females (CDC, 2017).

Conclusive evidence is needed to determine the role of sexual activity in the pathogenesis of BV. Proper classification of BV is necessary for better prevention and control of the disease.

## Signs & Symptoms

- Thin, white or gray vaginal discharge
- Fishy odor, especially after sex
- Vaginal burning or itching
- Dyspareunia (pain during sexual intercourse)
- Dysuria (pain when urinating)
- Many women are asymptomatic (American College of Nurse-Midwives [ACNM], 2015)

## Diagnosis

Diagnosis of BV is based on Amsel criteria. Three of the four criteria must be met for a positive diagnosis:

- pH > 4.5 (measured with pH strips)
- Thin, white or gray discharge
- Fishy odor after addition of 10% potassium hydroxide to vaginal smear (Whiff test)
- At least 20% clue cells on wet mount microscopy (Bagnall & Rizzolo, 2017)

## Treatment

The following treatment options are recommended by the CDC for bacterial vaginosis:

- Metronidazole 500 mg, orally twice a day for 7 days
- 0.75% metronidazole gel, one applicator intravaginally every night for 5 nights
- 2% clindamycin cream, one applicator intravaginally every night for 7 nights (Bagnall & Rizzolo, 2017)

## Implications for Nursing Care

Because BV increases risk for acquiring STIs, including HIV, the CDC recommends concurrent testing for Chlamydia, Gonorrhea, Trichomonas and HIV when screening patients for bacterial vaginosis (Bagnall & Rizzolo, 2017). Women being treated for BV should also be counseled on safe sex practices.

Further research must be done that leads to the development of more effective therapies and proper treatment guidelines for recurrent BV. The APN should keep abreast of emerging research and new therapies in order to provide the most exceptional patient care.

Yeast infections are a common consequence of BV treatment, and can be easily treated with 150 mg oral Fluconazole (Bagnall & Rizzolo, 2017).

The APN should be mindful of the psychological impact this disease can have on patients. Women may feel shame due to the discharge and malodor, and avoid sexual activity (Bagnall & Rizzolo, 2017).

Patient education is a very important component of treatment and prevention in bacterial vaginosis.

Patients prescribed oral metronidazole must be informed to avoid alcohol while taking the medication to prevent a disulfiram-like reaction (Bagnall & Rizzolo, 2017).

Patients should be provided with information on risk factors for BV and counseled on behavioral prevention interventions.

Patients should be advised to take probiotics or eat yogurt with lactobacilli to recolonize normal flora (ACNM, 2015).

## Conclusions

Bacterial vaginosis affects 29% of women (Bagnall & Rizzolo, 2017). It is vital that clinicians are knowledgeable about this disorder as they are highly likely to encounter it in practice due to its high prevalence.

Clinicians must also stay informed of the latest research and new therapies to best help their patients as current therapies do not eradicate the disease for almost half of affected women. Having BV increases the risk of acquiring and transmitting HIV (Machado & Cerca, 2015). Thus, treatment and prevention of bacterial vaginosis can also help reduce the spread of STIs, including HIV.

## References

