

The background of the cover is a vibrant, microscopic view of various bacteria. The bacteria are depicted in various colors, including red, orange, yellow, and white, against a pinkish-red background. Some bacteria are rod-shaped, while others are more spherical or irregular. The lighting creates a sense of depth and movement, with some bacteria appearing to be in focus and others blurred in the background.

Management of

Bacterial Vaginosis



A Guide For Healthcare Professionals

Bacterial Vaginosis (BV)

Bacterial vaginosis is the most common form of vaginal infection. BV is caused by an imbalance in the naturally occurring microbial flora where lactic acid producing *Lactobacillus* species predominate. BV should *not* be confused with yeast infection (Candidiasis), or infection with *Trichomonas vaginalis* (Trichomoniasis) which are not caused by bacteria. *It is not generally considered to be a sexually transmitted infection.*

Causes

A healthy vagina normally contains many microorganisms primarily *Lactobacillus* species such as *Lactobacillus crispatus* and *Lactobacillus jensenii*. *Lactobacillus* (LB) are a genus of commensal (benign) bacteria that colonise the mucosal surface of the vagina where they convert natural lactose and other sugars to lactic acid creating an acidic environment in which they thrive (Fig. 1). Lactobacilli form a crucial component of the innate immune system and are found in the vagina and GI tract where they inhibit the growth of pathogenic species of bacteria by:

- Competing for fermentation substrates
- Lowering pH through production of lactic acid
- Production of natural bactericides e.g. hydrogen peroxide (H₂O₂)

Lactobacilli are highly sensitive to changes in their natural environment often brought about by physiological and external factors such as: falling oestrogen levels; antibiotic therapy; exposure to detergents; smoking; stress; sexual activity and the use of IUDs. This altered environment can lead to an overgrowth of pathogenic species of bacteria (Fig. 2) such as *Gardnerella vaginalis*, *Mobiluncus*, *Bacteroides*, and *Mycoplasma*. These bacteria are often found at low levels in the vagina however, given an opportunity to proliferate they do so. Upon reaching significant numbers BV associated bacteria begin to produce toxins that interfere with the mucosal immune system, and break down the protective mucus layer leading to a characteristic discharge.

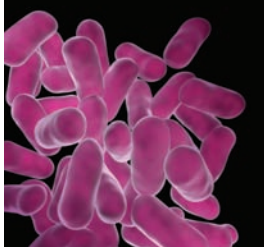
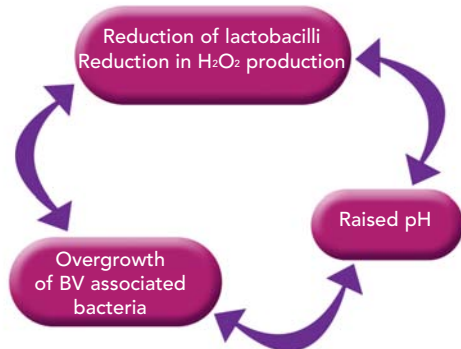


Fig 1.
Lactobacilli bacteria -
natural lactic acid producers

Fig 2.
The interrelationship
of lactobacilli, vaginal pH
and the overgrowth of
BV associated bacteria

(Adapted from Wilson, 2004)



Symptoms and Signs

The most common symptom is a thin homogeneous white or grey malodorous discharge which is characteristic of BV. On examination, this discharge is observed to coat the walls of the vagina. Most women with BV do not usually complain of vaginal irritation or discomfort. Often women present with no symptoms, however BV may be diagnosed when vaginal swabs are taken for other indications. In contrast, a 'normal' discharge is odourless and will vary in consistency and amount with the menstrual cycle.

Complications associated with Recurrent BV

BV was previously considered to be a minor infection. However, recurrent BV is associated with serious gynaecological complications including:

- Preterm birth
- Postpartum endometritis
- Late miscarriage
- Pelvic Inflammatory Disease (PID)

Recent research has shown that recurrent BV is associated with increased susceptibility to sexually transmitted infections including HIV.

Diagnosis of BV

A healthcare professional seeing a woman present with vaginal discharge may consider the following conditions:

- Discharge is normal
- Candidiasis (Thrush)
- Trichomoniasis, an infection caused by *Trichomonas vaginalis*
- Bacterial vaginosis

Simple tests can be done to make a proper diagnosis. During a speculum examination some swabs should be taken from high in the vagina to confirm bacterial vaginosis. Under certain circumstances a diagnosis of BV can be made and treatment initiated without further investigations on the basis of:

- A history of recurring BV
- Symptoms and signs including an assessment of the discharge (Table 1)
- Measuring the pH of the vaginal fluid using pH paper (pH > 4.5 indicative of BV)

Table 1. Comparison of clinical features of Bacterial vaginosis, Candidiasis and Trichomoniasis

Symptoms	Bacterial vaginosis (BV)	Candidiasis (Thrush)	Trichomoniasis
Vaginal discharge	May be increased	May be increased	Usually profuse
Colour	White or pale grey	Usually white	Yellow-green
Consistency	Thin, smooth, milky or creamy.	Curdled or 'cottage cheese-like'.	Frothy
Odour	Distinctly fishy (often worse after intercourse).	Unpleasant odour	Vaginal discharge does not have bad odour.
Itching/burning/irritation	Usually not present	Vaginal itching/burning is usually present and may be quite marked.	Vaginal irritation and painful urination. May be irritation and soreness of the vulva.

(Plourd 1997; Harrison 1990)

Investigations

High vaginal swabs should be performed if the woman:

- Has had recurrent episodes of BV (four or more per year)
- Has recently given birth or has a history of preterm birth, late miscarriage or postpartum endometritis
- Has had recent gynaecological surgery
- Is at risk of sexually transmitted infection (STI)
- Displays symptoms non characteristic of bacterial vaginosis, or Trichomoniasis

The 'gold standard' criteria for diagnosis are based on Amsel's criteria. An alternative is to use a Gram-stained vaginal smear, with the Hay/Ison criteria or the Nugent score (below). However these are not always practical in primary care.

Table 2. Diagnostic criteria for Bacterial vaginosis

Criteria	Diagnosis	Findings
Amsel criteria	Need three out of four criteria to confirm diagnosis.	<ol style="list-style-type: none"> 1. Thin, white, homogeneous discharge. 2. Clue cells on microscopy. 3. Vaginal pH >4.5. 4. Release of a fishy odour on adding 10% potassium hydroxide.
Hay/Ison criteria	Grade 0 (normal) Grade 1 (normal) Grade 2 (intermediate) Grade 3 (BV)	<ol style="list-style-type: none"> 0. Epithelial cells only. 1. Lactobacillus morphotypes predominate. 2. Mixed flora with some lactobacilli present, but <i>Gardnerella</i> or <i>Mobiluncus</i> morphotypes also present. 3. Predominantly <i>Gardnerella</i> and/or <i>Mobiluncus</i> morphotypes. Few or absent lactobacilli.
Nugent score	<4 = normal 4 – 6 = intermediate >6 = BV	Derived from estimating the relative proportions of bacterial morphotypes to give a score between 1 and 10.

(Amsel et al 1983; Ison and Hay 2002; Nugent et al 1991)

It is important that a referral is considered where:

- A co-existent STI is suspected
- BV symptoms persist or frequently recur despite management in primary care
- There is recurrent BV during pregnancy especially where there is a history of previous idiopathic preterm delivery or second trimester loss
- Where a gynaecological cancer is suspected

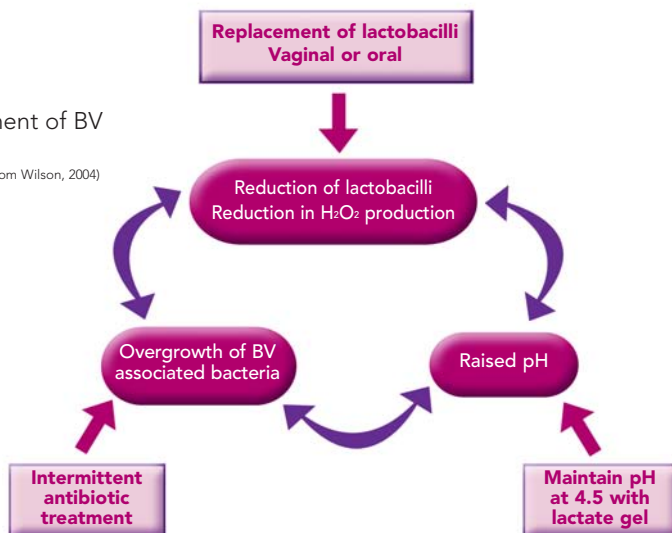
Management of Recurrent BV

The conventional prescribed treatment is a course of antibiotics (metronidazole or clindamycin) which are available as a course of oral tablets or as a topical treatment.

The recurrence rate of BV with antibiotic therapy can be as high as 70% and it has been suggested that the most successful approach to managing recurrent BV would be a **combined** one where vaginal pH is maintained at 4.5, the overgrowth of BV associated bacteria is controlled and lactobacilli restored (Fig 3).

Fig 3.
Treatment of BV

(Adapted from Wilson, 2004)



Restoring Vaginal pH to 4.5

Intervention with a lactate gel has been shown to lower vaginal pH. The primary goal of lactate gel therapy is the restoration and maintenance of the vaginal pH at 4.5 to prevent or inhibit overgrowth of pathogens, until such time as the lactobacilli have become re-established and can maintain vaginal pH unassisted.

Relactagel is a natural approach to the management of bacterial vaginosis through the regulation of vaginal pH.

Relactagel

- Restores and maintains the natural pH of the vagina creating a suitable environment for the growth of lactobacilli
- Relieves abnormal discharge and odour
- Treats and prevents BV
- Can be used during pregnancy

Relactagel Dosage

For Treatment:

One single tube per day for 7 days at bedtime.

For Prevention:

One single tube per day for 2-3 days at bedtime after menstruation.



Relactagel is a registered medical device which is available from hospital and community pharmacies.

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Contact Information

Relactagel is manufactured and marketed by Kora Healthcare, Swords Business Park, Swords, Co. Dublin, Ireland.

For further information please contact:



Tel: +353-1- 890 0406

Fax: +353-1- 890 3016

Email: relactagel@kora.ie

Web: www.kora-health.com