Bacterial vaginosis

1. Bacterial vaginosis

Bacterial vaginosis (BV) is the commonest cause of pathological vaginal discharge in women of reproductive age, with reported prevalence rates from 5–50%!

Vaginal discharge is a common complaint in primary care, and BV is not an easy diagnosis for us to confirm – although we can suspect clinically and manage empirically.

This article uses BASHH and RCGP guidelines, and articles in the New England Journal of Medicine, to outline the best approach to managing BV in general practice (NEJM 2018;379:2246; BASHH National Guideline for the Management of Bacterial Vaginosis, 2012; RCGP, Sexually Transmitted Infections in Primary Care, 2013, NEJM 2025;392:1026, NEJM 2025;392:947).

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1.1. The normal vaginal environment

The normal microbial environment of the vagina of a woman of reproductive age is characterised by:

- Low pH (<4.5).
- Predominance of lactobacilli bacteria.
- Oestrogen-primed epithelial cells.

Lactobacilli produce lactic acid and hydrogen peroxide which lower the pH of the vagina, and may provide a defence against the growth of other organisms and STIs.

1.2. What is bacterial vaginosis?

BV is a polymicrobial disorder of the vaginal flora characterised by:

- Reduced vaginal lactobacilli.
- More alkaline vaginal secretions than normal (pH 4.6–6).
- Presence of an anaerobic bacterial biofilm which adheres to the vaginal epithelium.

BV may be asymptomatic or symptomatic, and may arise and remit spontaneously.

Pathogenesis

We don't know what causes BV or why some women are susceptible.

Triggers may include changes in hormonal state, menstruation, antibiotic treatment and sexual activity. In BV, the acidic vaginal equilibrium becomes upset, and loss of

lactobacilli results in higher concentrations of anaerobic organisms (e.g. *Gardenerella vaginalis*, *Mycoplasma hominis*, *Atopobium vaginae*).

Risk factors for BV

These include:

- Vaginal douching.
- Receptive cunnilingus.
- Recent change in sexual partner.
- Smoking.
- Presence of an STI.

BV may be more common in IUD users.

1.3. Is BV sexually transmitted?

In the past, BV was thought of as a 'sexually associated' infection rather than a sexually transmitted infection (RCGP, Sexually Transmitted Infections in Primary Care, 2013).

There is now substantial evidence supporting the role of sexual transmission in BV, with epidemiological and microbiological data confirming that it 'behaves' like an STI (NEJM 2025;392:1026, NEJM 2025;392:947).

- Symptoms may be exacerbated by sexual activity, AND
- BV is associated with increased transmission of STIs, especially:
    - HIV.
    - Chlamydia (this may be due to the increased secretions of chlamydial cervicitis changing the vaginal ecosystem, favouring the growth of anaerobic

organisms).

1.4. Symptoms and sequelae

50% of women with BV are asymptomatic.

Symptomatic BV classically presents with a milky, homogenous vaginal discharge which is typically malodourous.

The 'fishy' smell is caused by alkalinisation of vaginal fluids causing release of organic acids or polyamines, which are by-products of anaerobic bacterial metabolism.

BV is NOT associated with inflammation.

Complications

- PID (although link is tenuous – prevalence of BV is high among women with PID, but causation has yet to be established).
- Postoperative infection (BV is associated with infection post-hysterectomy and TOP).
- Adverse pregnancy outcomes:
    - Late miscarriage.
    - Premature rupture of membranes.
    - Preterm birth.
    - Chorioamnionitis.
    - Postpartum endometritis.

Note: attributable risks are likely to be small, and data suggests that treatment of BV in pregnancy does not reduce adverse pregnancy outcomes.

1.5. Diagnosing BV

BV can be confirmed microscopically, but specific tests may not be practical or easy to obtain in primary care.

Clinical diagnosis

If testing is not available, a pragmatic approach may be to treat empirically on the basis of history (malodourous discharge in the absence of inflammatory symptoms) and examination (other causes excluded and raised vaginal pH if testing strips available).

Confirmation of BV

This may be necessary if symptoms do not resolve with treatment or recur. Both diagnostic approaches require laboratory-based testing of vaginal secretions (consider speaking to your local lab to see which criteria it favours).

Note: identification of *Gardnerella vaginalis* on a high-vaginal swab is not diagnostic of BV as it can be found in 50% of normal vaginal flora.

Amsel's criteria

3 out of 4 criteria are necessary for positive diagnosis:

- Thin, white homogenous discharge.
- Clue cells on wet-mount microscopy (these are vaginal epithelial cells covered in bacteria).
- pH of vaginal fluid >4.5.

- Release of fishy odour on adding alkali (10% KOH) to discharge (on a slide, in a lab, as KOH is very caustic!).

Hay/Ison criteria

A gram-stained vaginal smear is examined microscopically to confirm nature and predominance of bacteria present. The specimens are graded 1 (normal) to 3 (BV). This system is recommended in the GUM setting.

1.6. Management

Offer antibiotic treatment to:

- Symptomatic women.
- Women undergoing some surgical procedures (e.g. TOP) but NOT IUD insertion.
- Some women in pregnancy (see below).

Antibiotic regimens

First line	Oral metronidazole 400mg twice daily for 5–7d.
	Oral metronidazole 2g PO stat dose.
	Intravaginal metronidazole gel (0.75%) once daily for 5d.
	Intravaginal clindamycin cream (2%) once daily for 7.
Alternative regimens	Oral tinidazole 2g stat dose.
	Oral clindamycin 300mg twice daily for 7d.

General advice

- Consider STI screening and assessment of pregnancy risk if indicated.
- Avoid vaginal douching.
- Do not use shower gels.
- Avoid shampoos or antiseptic agents in the bath.
- Topical treatments may impact efficacy of condoms.
- CHC and condom use may protect against BV (lactobacilli favour an oestrogenised vagina).

BASHH does not recommend probiotic lactobacilli or acidifying gels as there is no evidence of benefit.

Pregnancy and breastfeeding

There is no evidence of teratogenicity from the use of metronidazole in the first

trimester of pregnancy. BASHH recommends we:

- Treat symptomatic BV in pregnancy as in non-pregnancy (but avoid 2g stat doses of metronidazole).
- Consider treatment of asymptomatic pregnant women with BV and additional risk factors for preterm birth before 20w gestation.
- Use intravaginal preparations if breastfeeding (oral antibiotics may enter milk and affect taste).

1.7. Recurrent bacterial vaginosis

There is limited evidence for the best approach to prevent recurrent BV.

In primary care, we should **refer to GUM for confirmation of diagnosis,** and then options include:

- Lifestyle: avoidance of triggers (e.g. douching, shower gels…).
- Consider change of contraceptive method (remove IUD or consider CHC).
- Antibiotic prophylaxis:
    - Oral metronidazole 400mg twice daily for 3d at start and end of menstruation.
    - Oral metronidazole 2g stat once a month.
    - Intravaginal metronidazole gel (0.75%) twice a week for 16w.
- Acidifying gels have little evidence to support use but are available OTC. The RCGP guidelines suggest they can be used alternate evenings for 1m, or longer if beneficial.

1.8. Male partner treatment?

A small but useful multicentre RCT in Australia tested the impact of male partner treatment on recurrent bacterial vaginosis frequency in women (NEJM 2025;392:1026, NEJM 2025;392:947).

350 couples with a female partner confirmed to have BV were randomised to 'usual care' (treatment of the woman only) vs. the addition of male partner treatment.

- Men were treated with a combination of oral metronidazole (400mg twice daily for 7 days) and topical 2% clindamycin twice daily for 7 days.
- The outcome was recurrence of BV symptoms in the female partner.
- At 12 weeks follow-up, there was a 35% recurrence rate in the male treatment group compared with 63% in the non-treatment group.
- This corresponds to an absolute risk reduction of 2.6 recurrences of BV per person per year.

BASHH does not currently recommend male partner treatment in its BV guidance. Will we see changes in guidance in the future?

Bacterial vaginosis

- BV is the commonest cause of vaginal discharge in women of reproductive age.
- It is a polymicrobial disorder of the vaginal flora characterised by reduced vaginal lactobacilli, alkaline vaginal secretions and an anaerobic bacterial biofilm.
- 50% of BV is asymptomatic. Symptomatic BV presents with an offensive discharge but no inflammatory symptoms.
- Access to confirmatory testing may be limited in primary care, so we can diagnose clinically based on symptoms, and treat empirically.
- First-line treatment is oral or intravaginal metronidazole or clindamycin.
- We should refer women with recurrent or persistent symptoms to GUM for microscopic confirmation of diagnosis.

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