Management and laboratory diagnosis of Abnormal Vaginal Discharge
Quick Reference Guide for Primary Care

- Causes of vaginal discharge include physiological, infective (e.g. bacterial vaginosis, candidiasis, trichomoni- 
asis) and non infective (foreign bodies, cervical ectopy and genital tract malignancy).
- Bacterial vaginosis (BV) causes about half the cases and is due to overgrowth of mixed anaerobes that replace normal vaginal lactobacilli. BV arises and remits spontaneously in both sexually active and inactive women.
- Acute vulvovaginal candidiasis is also very common and in 80% is caused by overgrowth of C. albicans. It is most common in women aged 20-30 and in pregnancy as oestrogens promote its growth.
- Some Sexually transmitted Infections (STIs) may present with vaginal discharge due to cervicitis. Chlamydia and Gonorrhoea are the most common bacterial STIs in the UK. BASHH Chlamydia and Gonorrhoea
- Trichomonas vaginalis (TV) is a less common cause and is found in about 3% of women presenting with infective vaginal discharge and is almost exclusively sexually transmitted. BASHH Trichomoni- 
asis

### DIAGNOSIS OF VAGINAL DISCHARGE IN PATIENTS > 25 YEARS USING SYMPTOMS & SIGNS

- **Vaginal Discharge**
- **Clinical and Sexual History**
- **If at risk of STIs refer to GUM or send vaginal, endocervical swab or urine for chlamydia and gonorrhoea**

#### pH ≤ 4.5
- White curdy discharge
- Thin, grey/white homogeneous discharge coating the vaginal walls
- Yellow, green frothy discharge
- Discharge has other appearance

#### pH > 4.5
- No other symptoms
- No further investigations needed
- Diagnose Bacterial Vaginosis (most common)
- Diagnose Trichomoni- 
asis (less common)

- **Give empirical therapy**
  - Culture not needed unless recurrent
- **Reassure that probably physiological**
- **Give empirical therapy**
  - Microscopy & culture NOT required
- **Refer to GUM**
  - Send HVS to lab for TV & other STIs
  - Send HVS for culture
  - Also send: vaginal, endocervical swab or urine for chlamydia and gonorrhoea

### WHEN TO INVESTIGATE

#### A
- **IF UNDER 25 YEARS ALWAYS OFFER AN ANNUAL CHLAMYDIA SCREEN**
  - Consider Nucleic Acid Amplification tests (NAATs) for Chlamydia +/- Gonorrhoea for women if:
    - < 25 years old
    - a new sexual partner in the last 12 months
  - Consider referral to GUM for further investigation if:
    - the diagnosis is in doubt
    - symptoms persist

#### B
- **Women of reproductive age with vaginal discharge should have a high vaginal swab (HVS) cultured if**
  - postnatal or post miscarriage
  - vaginitis without discharge
  - pre or post gynaecological surgery
  - pre or post termination of pregnancy
  - postnatal or post miscarriage

#### C
- **Endocervical swab & culture** should be reserved for those with signs and symptoms compatible with Gonorrhoea and/or a positive chlamydia or GC NAAT results, to test for susceptibility and identify resistant strains. BASHH GC

---

First Produced 2002; Latest review posted on website July 2013
Amendments: CE marked test equipment
Next Review: July 2015
SENDING SPECIMENS TO THE LABORATORY FOR DIAGNOSIS

Clinical details: Submitted samples should include the following clinical information to guide laboratory testing: nature of the vaginal discharge, any risk or suspicion of sexually transmitted disease, and associated symptoms.

HOW DO I SAMPLE?

HVS for culture: After introduction of speculum, roll swab anywhere on vaginal wall to obtain discharge.\(^{16}\)

Endocervical swab for GC culture: Clean the cervical os with a large sterile swab and discard. Insert a new swab into the endocervix and rotate 360 degrees.\(^{17}\) Swab the external os 360 degrees if os stenosed.\(^{ROCC/BASHH STI}\)

NAAT for chlamydia or gonorrhoea: Submit 15 to 20ml first void urine,\(^{18}\) self taken vaginal swab or endocervical swab using kit with plastic (not wooden) shafted swab provided by local lab. Do NOT put in charcoal medium.\(^{11}\)

TRANSPORTING SPECIMENS TO THE LAB

Transport medium for bacterial culture: Place all swabs in Amies transport medium WITH charcoal.\(^{19}\)

Transport of culture swabs to the lab:\(^{19-21}\)
- Transport samples to the laboratory as soon as possible.
- Refrigerate swabs at 4°C if NOT immediately sent to the laboratory.
- HVS for suspected Trichomoniasis should arrive in the laboratory within 6 hours
- Other swabs should be received by the laboratory within 48 hours

KEY

A  B  C  indicates grade of recommendation

This guidance was developed by the South West GP Microbiology Laboratory Use Group in collaboration with GPs, BIA and experts in the field and is in line with other UK GP guidance including CKS

Grading of guidance recommendations

<table>
<thead>
<tr>
<th>Study Design</th>
<th>Recommendation Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good recent systematic review of studies</td>
<td>A+</td>
</tr>
<tr>
<td>One or more rigorous studies, not combined</td>
<td>A-</td>
</tr>
<tr>
<td>One or more prospective studies</td>
<td>B+</td>
</tr>
<tr>
<td>One or more retrospective studies</td>
<td>B-</td>
</tr>
<tr>
<td>Formal combination of expert opinion</td>
<td>C</td>
</tr>
<tr>
<td>Information opinion, other information</td>
<td>D</td>
</tr>
</tbody>
</table>

Medline searches: 2010 Medline searches using key words from 1960 (a) candida and vulvovaginitis or vaginal discharge (b) high vaginal swab (c) chlamydia trachomatis and symptoms & signs (d) vaginal discharge and swab (c) from 2006 vaginal discharge

LOCAL ADAPTATION:
- We would discourage major changes to the guidance but the Word format allows minor changes to suit local service delivery and sampling protocols.
- To create ownership agreement on the guidance locally, dissemination should be taken forward in close collaboration between primary care clinicians, laboratories and secondary care providers.

*Camlab UK indicator papers CE marked for conformity pH 3.1-8.3 narrow range see [http://www.camlab.co.uk/ph-indicator-strips-p14538.aspx](http://www.camlab.co.uk/ph-indicator-strips-p14538.aspx) for further information (Accessed 25.07.13)
References and Related Websites


2. Bro F. Vaginal microbial flora in women with and without vaginal discharge registered in general practice. Dan Med Bull 1989;36:483-485. Detailed study in Danish general practice of 590 women under 18 years. Trichomonas found in 2.8% of women with vaginal discharge, Candida 31% and Gardnerella 52%.


7. Caillouette JC, Sharp CF, Zimmerman J, Roy S. Vaginal pH as a marker for bacterial pathogens and menopausal status. Am J Obstet Gynecol 1997;176:1270-7. This study enrolled 55 premenopausal and 152 postmenopausal women. 19% had vaginal discharge. It looked at pH with culture of Strepococci, Gardnerella vaginalis and mixed organisms compared to yeasts and normal flora. pH is significantly lower in groups with yeasts and normal flora. The paper contains a simple clear figure showing distribution of pH.

8. Bradshaw CS, Morton AN, Garland SM Horvath LB Kuzevska I Fairley CK. Evaluation of a point of care test BV Blue and clinical and laboratory criteria for the diagnosis of Bacterial vaginosis. J Clin Microbiol 2005;43:1304-8. This study examined 252 women with vaginal discharge in an Australian sexual health centre. Compared to Nugent method for diagnosis of BV, pH >4.5 had a 96% Sensitivity, 78% Specificity, 77% PPV and 97% NPV. The characteristic of discharge alone was unreliable (thin homogeneous discharge had an 84% Sensitivity, 46% Specificity, 54%PPV and 80% NPV).

9. UK national guidelines on sexually transmitted infections and closely related conditions. Sex Transm Infect 1999;75:Suppl 1. Very extensive evidence-based guidance on the management of genitourinary infections. http://www.bashh.org/guidelines. In patients with a symptom such as vaginal discharge (where the most frequent causes are not sexually transmitted), the history suggests low risk of STI and there are no symptoms indicative of upper genital tract infection, empirical treatment for candidiasis or bacterial vaginosis can be given. This is NOT appropriate in patients <25 years as statistically the greatest risk factor for having an STI is being under 25 years.

10. Dykhuizen RS, Harvey G, Gould IM. The high vaginal swab in general practice: clinical correlates of possible pathogens. Family Practice 1995;12:155-8. Retrospective study of 286 high vaginal swabs sent by GPs yielding Staph aureus, Group A, C or G Streptococci, Streptococcus milleri, Haemophilus influenzae or Streptococcus pneumonia on culture. Streptococci were associated with vulvovaginitis. Group A Streptococci were more common in premenarchal or post menopausal women and vaginal irritation was present in 19%. Vulvovaginitis was found in 77% of patients with group A Streptococci, 70% with Group C or G strep, 67% with S. pneumoniae, 39% with S. aureus and 46% with S. milleri.


12. Lavelle SJ, Jones KE, Mallinson H, Webb AM. Finding, confirming and managing gonorrhoea in a population screened for Chlamydia using the Gen-Probe Aptima Combo2 assay. Sex Transm Infect 2006;82:221-224. This study used NAAT testing for GC in a chlamydia screening programme in 4680 women and 473 men. The concomitant screening identified asymptomatic positives in 1% of women and 1.7% of men. 37 of the 38 positive NAAT tests were confirmed by other methods, showing it was very accurate.

13. Van Dyck E, leven M, Pattyn S, Van Damme L, Laghe M. Detection of Chlamydia trachomatis and Neisseria gonorrhoeae by enzyme immunoassay, culture and three nucleic acid amplification tests. J Clin Microbiol 2001;39:1751-1756. Comparisons between NAATs and culture suggest the sensitivity of NAATs exceeds 90% for genital sites, whilst the sensitivity for culture may be less than 75% for endocervical swabs.

had the typical bacterial flora of anaerobic (bacterial) vaginosis, 95 (24%) had candidal infection, 32 (8%) chlamydial infection, 3 (0.75%) trichomonas infection, and 1 (0.25%) gonorrhoea. Postoperative follow-up of 30 of the women with chlamydial infection showed that pelvic infection developed in 19 (63%), of whom 7 were readmitted to hospital.\(^{14}\)

15. Marrazzo J. Vulvovaginal candidiasis. BMJ 2003;326:993-4. Overview: Resistance has not increased with over-the-counter antifungals. Culture should be performed before embarking on long-term suppressive treatment as only 16% with recurrent symptoms have candidiasis.

16. Ferris DG et al. Variability of vaginal pH determination by patients and clinicians. J Am Board Fam Med 2006; 19:368-73. Study of vaginal pH in 113 women showed that patient and clinician obtained swabs and those taken from 3 different points within the vaginal vault gave similar Ph results, suggesting that the exact point of where a HVS is taken is not important.

17. Macsween KF, Ridgway GL. The laboratory investigation of vaginal discharge. J Clin Pathol 1998;51:564-67.\(^{16}\) This editorial gives detailed instructions on how to collect specimens and has some good photographs of the microscopy of normal flora and bacterial vaginosis.

18. Cook RL, Hutchinson SL, Otergaard L, Braithwaite RS, Ness RB. Systematic review: non invasive testing for Chlamydia trachomatis and Neisseria gonorrhoea. Sexual Health 2008;5:17-23. Results of nucleic acid amplification tests for C. trachomatis on urine samples are nearly identical to those obtained on samples collected directly from the cervix or urethra. Although all 3 assays can also be used to test for N. gonorrhoeae, the sensitivity of the polymerase chain reaction assay in women is too low to recommend its routine use to test for gonorrhea in urine specimens.

19. Sng E-H, Rajan VS, Yeo K-L, Goh A-J. The recovery of Neisseria gonorrhoeae from clinical specimens: Effects of different temperatures, transport times and media. Sex Transm Dis 1982;9(2):74-8. This study determined the loss of viability of N. gonorrhoeae in different transport media and temperatures. Specimens stored at lower temperatures gave the best yields of organisms.

20. Barber S, Lawson PJ, Grove DI. Evaluation of bacteriological transport swabs. Pathology 1998;30(2):179-82. This showed that transport systems containing Amies medium plus charcoal or Stuarts medium gave the best yields of Gram-positive and Gram-negative organisms. All transport mediums were very poor at maintaining N. gonorrhoeae reinforcing that direct inoculation of culture medium with rapid transport to the laboratory is the ideal.


**BASHH Guidance:** Accessed 19th April 2011

British Association for Sexual Health and HIV website http://www.bashh.org/guidelines

**RCGP & BASHH Guidance:** Accessed 4th May 2011


**HPA Guidance:** Accessed 4th May 2011

Management of Infection Guidance for Primary Care http://www.hpa.org.uk/web/HPAwebFile/HPAweb_C/119497333801
Diagnosis of UTI Quick Reference Guide for General Primary Care http://www.hpa.org.uk/web/HPAwebFile/HPAweb_C/119497330877

We welcome, in fact encourage, opinions on the advice given and future topics we should cover. We would be most appreciative if you could email any evidence or references that support your requests for change so that we may consider them at our annual review. Comments should be submitted to Dr Cliodna McNulty, Head of PHE Primary Care Unit, Microbiology Laboratory, Gloucestershire Royal Hospital, Great Western Road, Gloucester GL1 3NN. Email: cliodna.mcнутly@phe.gov.uk or katherine.butler@phe.gov.uk