SUMMARY POINTS

- Candida infection is probably over-diagnosed whereas bacterial vaginosis is probably under-diagnosed.
- Trichomoniasis is uncommon in Oxfordshire but when found, is often associated with other sexually transmitted infections.
- Women with persistent or recurrent vaginal/vulval symptoms should be examined and investigated. Whilst vaginal discharge is not, in itself, an indication for chlamydia testing all sexually active women under the age of 25 should be offered a chlamydia screen.
- A high vaginal swab (HVS) cannot be used to diagnose gonococcal infection. A cervical swab is required but referral to a Sexual Health Clinic would be preferred.
- There is no evidence that oral treatment of candidosis is more effective than topical treatment.
- Pregnancy is not a contraindication to oral metronidazole 400mg bd for the treatment of bacterial vaginosis.

Introduction

Although GPs often diagnose and treat vaginal candidosis and bacterial vaginosis (BV) on clinical grounds there is evidence that clinical diagnoses based on signs and symptoms correlate poorly with laboratory findings. In particular candidosis is probably over diagnosed and BV under diagnosed.

These guidelines are intended to aid diagnosis and rationalise prescribing. The flow chart summarises the guidelines and is intended for stand-alone use.

Vaginal Discharge

Normal physiological discharge changes with the menstrual cycle. It is thick and sticky for most of the cycle, but becomes clearer, wetter, and stretchy for a short period around the time of ovulation. These changes do not occur in women using oral contraceptives.

Abnormal vaginal discharge is characterized by a change of colour, consistency, volume, or odour, and may be associated with symptoms such as itch, soreness, dysuria, pelvic pain, or intermenstrual or post-coital bleeding.

Only the patient can be aware of her own “normal” amount and type of discharge. The normal discharge may increase:
- Premenstrually
- At time of ovulation
- When commenced on HRT or hormonal contraception
**Causes of Abnormal Vaginal Discharge**

Abnormal vaginal discharge is most commonly caused by infection; less commonly, abnormal vaginal discharge can have a non-infective cause\(^1\).

**Infective cause\(^1,2\):**

- Candida and bacterial vaginosis are the most common cause of discharge; diagnosis can be based on symptoms, pH and signs.
- Trichomoniasis is a less common cause of vaginal discharge in primary care but when found, is often associated with other sexually transmitted infections.
- Vaginal candidiasis caused by fungal infection with *Candida albicans*.
- Bacterial vaginosis caused by an overgrowth of anaerobic bacteria, particularly *Gardnerella vaginalis*.
- Trichomoniasis, a sexually transmitted infection caused by the protozoan *Trichomoniasis vaginalis* (TV).
- Endocervical infections caused by *Chlamydia trachomatis* and *Neisseria gonorrhoeae* may cause vaginal discharge or other symptoms such as; dysuria, post coital/intermenstrual bleeding, deep dyspareunia, pelvic pain and tenderness (if there is ascending pelvic infection), or reactive arthritis.
- *Herpes simplex* may rarely be associated with discharge.
- STIs are significantly more common in women <25 years and, in this age group, an STI screen for Chlamydia, Gonorrhoea, TV, Syphilis and HIV should always be considered. These patients may need referral to Sexual Health Clinic.
- Offer chlamydia screen to all sexually active, <25 year olds.
- *Strep. pyogenes, Haemophilus influenzae and Strep. pneumoniae* may cause vulvovaginitis in infants, young girls and occasionally adults.

**Clinical features associated with the three most common causes of vaginal discharge during the reproductive years\(^3\):**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Vulvovaginal candidiasis</th>
<th>Bacterial vaginosis</th>
<th>Trichomoniasis</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Symptoms</strong></td>
<td>Thick white discharge</td>
<td>Thin discharge</td>
<td>Scanty to profuse frothy yellow discharge</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Offensive or fishy odour</td>
<td>Offensive odour</td>
</tr>
<tr>
<td></td>
<td>Vulval itch</td>
<td>No discomfort or itch</td>
<td>Vulval itch or soreness</td>
</tr>
<tr>
<td></td>
<td>Superficial dyspareunia</td>
<td></td>
<td>Dysuria (external)</td>
</tr>
<tr>
<td></td>
<td>Dysuria</td>
<td></td>
<td>Low abdominal pain</td>
</tr>
<tr>
<td><strong>Signs</strong></td>
<td>Vulval erythema, oedema,</td>
<td>Discharge coating vagina and vestibule</td>
<td>Vulvitis and vaginitis</td>
</tr>
<tr>
<td></td>
<td>fissuring, satellite lesions</td>
<td>No inflammation of vulva</td>
<td>'Strawberry' cervix</td>
</tr>
<tr>
<td><strong>pH of vaginal fluid</strong></td>
<td>Vaginal pH &lt; 4.5</td>
<td>Vaginal pH &gt; 4.5</td>
<td>Vaginal pH &gt; 4.5</td>
</tr>
<tr>
<td><strong>Microscopy</strong></td>
<td>Yeasts and pseudo-</td>
<td>“Clue” cells</td>
<td></td>
</tr>
<tr>
<td></td>
<td>hyphae</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Non-infective cause:
- A retained foreign body such as a tampon, condom, or vaginal sponge.
- Inflammation due to allergy or irritation caused by substances such as deodorants, lubricants, and disinfectants.
- Tumours of the vulva, vagina, cervix, and endometrium.
- Atrophic vaginitis in post-menopausal women.
- Cervical ectopy or polyps.

When to send a swab:
GP submission of genital swabs for culture varies greatly from 5-40/1,000 population/year. Send high vaginal swab (HVS) if:
- postnatal
- pre & post termination of pregnancy
- pre & post operative gynae surgery
- persistent or recurrent (≥ 4 episodes/year) symptoms
- symptoms not characteristic of candida or bacterial vaginosis
- vaginitis without discharge
- Possible STI
- Suspected PID

Also send endocervical swabs.

Investigations

General Practice
Microscopy can identify candidosis and BV. BV is diagnosed when at least three out of four of the following are present:
- Homogenous white-grey non inflammatory discharge.
- pH of vaginal fluid >4.5 (Beware, the pH of normal cervical mucus is 7)
- Positive amine test (release of amine odour with 10% KOH)
- Clue cells

For practical reasons, few surgeries are able to perform microscopy or the amine test and a diagnosis of BV is usually made on the basis of symptoms +/- signs +/- pH.
Vaginal fluid pH >4.5 is a sensitive test for BV but has low specificity. A pH <= 4.5 can be useful in excluding BV in the absence of a suggestive discharge. Narrow range pH paper (pH4-6) can be obtained directly from Whatman International Ltd, Sales Department, St Leonard’s Road, Maidstone, Kent, ME16 0LS, Catalogue No. 2600-102. http://www.whatman.com/PRODpHIndicatorsandTestPapers.aspx

Although clinical diagnoses correlate poorly with laboratory findings it is reasonable to treat first or occasional episodes of vaginal discharge according to clinical findings without sending specimens to the laboratory (see above and flow chart). It would be appropriate to submit occasional samples from “typical” cases of candidosis or BV to allow personal comparison of laboratory and clinical findings.

Laboratory investigation usually requires a high vaginal swab in transport medium.
Laboratory
The laboratory examines HVS specimens for clue cells, Candida and Trichomonas. Endocervical swabs are also cultured for *N. gonorrhoeae*, Chlamydia can be detected using nucleic acid amplification tests (NAAT) using special Chlamydia detection kits.

Candida is commonly present in the vagina and small numbers may not be clinically important.

**Sampling**
- High vaginal swabs for microbiology: Obtain discharge present in vagina, place swab in charcoal-based transport medium and transport to the laboratory as soon as possible. Refrigerate at 4°C if any delay. Low vaginal swabs are to be avoided as they may be contaminated with perineal flora.
- An HVS cannot be used to diagnose Gonococcal or Chlamydia infection. Investigation of patients with risk factors for sexually transmitted infection or with mucopurulent cervicitis should preferably be carried out in the Sexual Health clinic.
- If STI considered or patient <25 years:
  - In addition to taking an HVS, sample discharge from endocervix for *Neisseria gonorrhoeae* culture; place in charcoal-based transport medium and transport immediately to the laboratory.
  - Also send endocervical swab (or vaginal swab which can be self-taken) for Chlamydia by nucleic acid amplification test (NAAT). Use Chlamydia NAAT swab kit provided by local laboratory. (Oxford = Fax order to 01865 221778 at Specimen Reception Level 4 JRH, Horton = Fax order to 01295 229225 at HGH Pathology Reception). Do NOT put Chlamydia swab in charcoal medium.

**Sexual Health Clinic**
Women with risk factors for sexually transmitted infections should be considered for referral to a Sexual Health Clinic, especially if they have recurrent symptoms. The main risk factors are:
- Age <25
- New partner in last 3 months
- Two or more partners in last 6 months
- Non-use of barrier contraceptives
- Symptoms or STI in partner

**Sexual Health Oxfordshire**
Information about contraception choices, treatment and testing for STIs, unplanned pregnancy, emergency contraception and sexual assault support in Oxfordshire can be found on; [www.sexualhealthoxfordshire.nhs.uk](http://www.sexualhealthoxfordshire.nhs.uk). The website is aimed at everyone who is sexually active, not just young people.

**Treatment**
Treatment should be in line with the local approved antimicrobial guidelines. A summary of the current recommendations (March 2014) are given in Table 1 below. Table 2 lists the current costs of the recommended treatments.
### Table 1 - Treatment of vaginal candidiasis, bacterial vaginosis and trichomoniasis

<table>
<thead>
<tr>
<th>INFECTION</th>
<th>COMMENTS</th>
<th>DRUG</th>
<th>DOSE</th>
<th>DURATION OF TX</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vaginal Candidiasis</td>
<td>All topical and oral azoles give 75% cure.</td>
<td>clotrimazole or oral fluconazole</td>
<td>500mg pessary or 10% cream</td>
<td>stat</td>
</tr>
<tr>
<td>BASHH PHE CKS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In pregnancy: avoid oral azole and use intravaginal treatment for 7 days.</td>
<td>Pregnant or breastfeeding:</td>
<td>clotrimazole or miconazole 2% cream</td>
<td>100mg pessary at night 5g intravaginally BD</td>
<td>6 nights 5C</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Failed vaginal candidiasis treatment</td>
<td>Examine and investigate.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recurrent proven candida – patients experiencing cyclical relapse that requires suppressive therapy.</td>
<td>clotrimazole or fluconazole or itraconazole</td>
<td>400mg oral once monthly at the expected time of symptom</td>
<td>for 3-6 months</td>
<td>for 3-6 months</td>
</tr>
<tr>
<td></td>
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</tr>
<tr>
<td>Bacterial Vaginosis</td>
<td>Oral metronidazole is as effective as topical treatment but is cheaper.</td>
<td>metronidazole or metronidazole 0.75% vaginal gel or clindamycin 2% cream</td>
<td>400mg BD or 2g 5g applicator at night 5g applicator at night</td>
<td>5 - 7 days 5B</td>
</tr>
<tr>
<td>BASHH PHE CKS</td>
<td>Less relapse with 5-7 day than 2g stat at 4 wks.</td>
<td></td>
<td></td>
<td>stat 5B</td>
</tr>
<tr>
<td></td>
<td>Pregnant or breastfeeding: avoid 2g stat.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Treating partners does not reduce relapse</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Failed bacterial vaginosis treatment</td>
<td>Examine and investigate.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Treichomoniasis</td>
<td>Treat partners and refer to sexual health service</td>
<td>metronidazole or clotrimazole</td>
<td>400mg BD or 2g 100mg pessary at night</td>
<td>5-7 days 5B</td>
</tr>
<tr>
<td>BASHH PHE CKS</td>
<td>In pregnancy or breastfeeding: avoid 2g single dose metronidazole</td>
<td></td>
<td></td>
<td>stat 5B</td>
</tr>
<tr>
<td></td>
<td>Consider clotrimazole for symptom relief (not cure) if metronidazole declined</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 2 - Costs of recommended treatments

<table>
<thead>
<tr>
<th>DRUG</th>
<th>DOSE</th>
<th>DURATION OF TX</th>
<th>COST</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vaginal candidiasis</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>clotrimazole</td>
<td>500 mg pessary</td>
<td>stat</td>
<td>£3.45(^a)</td>
</tr>
<tr>
<td></td>
<td>10% cream</td>
<td>stat</td>
<td>£6.23(^a)</td>
</tr>
<tr>
<td></td>
<td>100 mg pessary at night</td>
<td>6 nights</td>
<td>£3.50(^a)</td>
</tr>
<tr>
<td>fluconazole</td>
<td>150 mg orally</td>
<td>stat</td>
<td>£1.02(^a)</td>
</tr>
<tr>
<td>miconazole 2%</td>
<td>5 g intravaginally BD</td>
<td>7 days</td>
<td>£4.33(^b)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Recurrent vaginal candidiasis</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>clotrimazole</td>
<td>500mg pessary once weekly</td>
<td>3-6 months</td>
<td>£41.40–£82.80(^a)</td>
</tr>
<tr>
<td>fluconazole</td>
<td>100mg oral once weekly</td>
<td>3-6 months</td>
<td>£3.63–£7.27(^a)</td>
</tr>
<tr>
<td>itraconazole</td>
<td>400mg oral once monthly at the expected time of symptoms</td>
<td>3-6 months</td>
<td>£3.66–£7.33(^a)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Bacterial vaginosis</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>metronidazole</td>
<td>400mg BD</td>
<td>7 days</td>
<td>£0.89(^a)</td>
</tr>
<tr>
<td>metronidazole</td>
<td>2g</td>
<td>stat</td>
<td>£0.32(^a)</td>
</tr>
<tr>
<td>metronidazole 0.75% vaginal gel</td>
<td>5 g applicator at night</td>
<td>5 nights</td>
<td>£4.31(^b)</td>
</tr>
<tr>
<td>clindamycin 2% cream</td>
<td>5 g applicator at night</td>
<td>7 nights</td>
<td>£10.86(^a)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Trichomoniasis</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>metronidazole</td>
<td>400mg BD</td>
<td>5-7 days</td>
<td>£0.89(^a)</td>
</tr>
<tr>
<td>metronidazole</td>
<td>2g</td>
<td>stat</td>
<td>£0.32(^a)</td>
</tr>
</tbody>
</table>

= most cost effective option

= pregnancy

\(^a\) - Drug Tariff. December 2014
\(^b\) - Chemist & Druggist. Dec 2014

References
3. Clinical Knowledge Summary: Candida - female genital. Last revised December 2013
DIAGNOSIS OF CANDIDA, BACTERIAL VAGINOSIS AND TRICHOMONIASIS BY SYMPTOMS AND SIGNS IN ADULT WOMEN

Vaginal discharge

Fishy or offensive odour

Check if pH of discharge is >4.5 with narrow range pH paper

Characteristic appearance of discharge

Yellow, green frothy +/- pruritis, vaginitis

Bacterial Vaginosis

Most common

Culture not needed

White curdy discharge

Check pH of discharge pH vaginal fluid ≤ 4.5

Other appearance

Thin, white/grey homogeneous coating

Check if pH of discharge is >4.5 with narrow range pH paper

Trichomoniasis

Less common

Send HVS for culture

Consider other STIs

Also send:
- GC endocervical swab PLUS
- Vaginal or endocervical swab for Chlamydia

Other causes:
- Foreign body (e.g. tampon)
- Trichomoniasis
- Streptococcal/Staphlococcal infection
- Chlamydia – endocervical vaginal Chlamydia swab
- N. gonorrhoeae – endocervical bacteriology swab
- Herpes - swab from lesion in viral transport medium bacterioloov swab

Take bacteriology HVS and endocervical swab.
If new sexual partner and <25 years, take Chlamydia screening test

Consider other causes

Candida

Culture not needed unless recurrent

Other signs:
- Vulval itching or soreness
- Erythema/vaginitis
- Fissuring
- Satellite lesions

Other causes include:
- Physiological
- Allergy
- Pin worm – moistened swab from perianus dermophyte if pruritis

IF <25 YEARS & SEXUALLY ACTIVE ALWAYS OFFER AN ANNUAL CHLAMYDIA SCREEN

Dr Ian Bowler (Consultant and Deputy Clinical Lead Microbiology – OUH); Louisa Griffiths (CCG Medicines Management); Dr David Grimshaw (CCG Pathology lead); Dr Jackie Sherrard (Consultant, Genitourinary Medicine – OUH)