
Clinical Effectiveness Group (CEG)
British Association for Sexual Health and HIV (BASHH)

Guideline Development Group
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New in the 2018 guidelines:

Terminology:
• the new guidelines refer to ‘acute’, ‘recurrent’ and ‘chronic’ vulvovaginal candidiasis (VVC) and no longer use the terms ‘uncomplicated’ and ‘complicated’ VVC; the new definitions are felt to be more reflective of how women with VVC typically present to clinical services and are subsequently managed
• the elements of complicated VVC are still covered within the guideline

Diagnosis:
• culture is no longer required in the setting of acute VVC
• culture is still recommended for recurrent or chronic VVC with appropriate speciation and sensitivity testing depending on clinical indication
• greater emphasis has been placed on ensuring that other vulval pathologies are not missed in the setting of possible recurrent or chronic VVC
• interpretation of antifungal susceptibility testing is dependent on the pH at which the test is performed
Treatment:

- Oral azoles – continue to avoid in pregnancy, risk of pregnancy and breast feeding
- Ketoconazole is no longer recommended for the treatment of VVC
- Non-azole therapies to be reserved for azole resistance and certain non-albicans *Candida* species
- Licensed nystatin pessaries are no longer available; various unlicensed brands of nystatin pessaries are available but some are imported so the patient information leaflet may not be in English and there have been intermittent supply issues

INTRODUCTION AND METHODOLOGY

Objectives

This guideline offers recommendations on the diagnostic tests, treatment regimens and health promotion principles for the effective management of vulvovaginal candidiasis (VVC). It covers the management of acute, recurrent and chronic VVC.

It is aimed at individuals aged 16 years and older (see specific guideline for under 16 year olds) presenting to healthcare professionals working in departments offering level 3 care in sexually transmitted infections (STIs) management within the UK.

However, the principles of the recommendations can be applied in other settings using local care pathways where appropriate. Guidelines for the management of vaginal discharge in non-genitourinary medicine settings can be found at [www.fsrh.org/guidelines](http://www.fsrh.org/guidelines).

Search strategy

This document was produced in accordance with the guidance set out in the CEG’s document ‘Framework for guideline development and assessment’ at [http://www.bashh.org/guidelines](http://www.bashh.org/guidelines). The GRADE system was used to assess the evidence and make recommendations as detailed in the guidance.

The following reference sources were used to provide a comprehensive basis for the guideline:

1. Medline, Embase, Cochrane and CINAHL Search
b. The search strategy comprised the following terms in the title or abstract: [Vagina* OR vulva* OR vulvovaginal OR vulvo-vaginal OR vaginosis OR vaginitis OR vulvitis OR thrush (NOT oral)] AND [Candida OR candidiasis OR candidosis OR yeast]. The search was limited to English language and human subjects. 1412 citations were identified.


* The search period was extended to March 2018 during the peer review of first draft of the guideline to identify any new relevant evidence.

Methods

- The broad search terms used above were necessary given the various international terminology used for VVC but resulted in a large number of citations (1412).

- The article titles and abstracts of all 1412 citations were reviewed for relevance. Citations clearly from animal studies, non-patient based studies, single case reports, studies in children, and those on subjects not relevant to the diagnosis or management of VVC were excluded on first review.

- The titles and abstracts of the remaining citations (800) were reviewed by at least two members of the writing group. Priority was given to randomised controlled trials, systematic review evidence, and studies related to pertinent clinical questions to be addressed by the guideline.

- The full texts of approximately 210 citations were obtained and reviewed using the GRADE system by at least two members of the writing group. Recommendations were made and graded on the basis of best available evidence.

Equality impact assessment

To be included in final publication

Piloting & feedback

The first draft was produced by the writing group and then circulated to BASHH CEG for using the AGREE appraisal tool. The second draft of the guideline is posted on BASHH website for wider consultation and simultaneously reviewed by the BASHH Public Panel. The final draft will be presented to the CEG for review and piloting in their clinics.
Once the guideline is published to the BASHH website the CEG will keep it under review should critical new evidence become available that affects the current recommendations. The guideline will be formally reviewed and updated every 5 years.

DEFINITIONS

Acute VVC
- first or single isolated presentation of vulvovaginal candidiasis (VVC)
- patients typically present with signs and symptoms of acute vulvovaginitis and are usually microscopy and culture positive for a Candida sp.

Recurrent VVC
- at least 4 episodes per 12 months with 2 episodes confirmed on microscopy or culture when symptomatic (at least one must be culture)
- patients typically report good or complete responses to therapy and are asymptomatic between episodes.

Chronic VVC
- Patients present with chronic, continuous symptoms, which may improve during menses and typically remit with antifungal therapy, often recurring when this is ceased, particularly after short course therapy (usually but not always confirmed on microscopy or culture at presentation), OR
- recurrent episodes or chronic symptoms suggestive of VVC confirmed on microscopy or culture whilst patients are symptomatic and reporting poor or partial response to therapy.
AETIOLOGY

Candidiasis is a fungal infection caused by yeasts that belong to the genus *Candida*. Yeasts are eukaryotic, unicellular microorganisms which have the ability to develop multicellular characteristics by forming pseudohyphae and biofilms. *Candida* yeasts are present in low numbers on healthy skin in moist areas and are part of the normal flora of the mucous membranes of the respiratory, gastrointestinal and female genital tracts; overgrowth of these organisms can cause infection to develop. There are over 20 species that can cause infections in humans, of which *Candida albicans* is the most common. Candida can also cause serious systemic infections, but these do not originate from the genital tract infections.

Vulvovaginal candidiasis (VVC) is caused by:

- *Candida albicans* in 80-89% \(^1,2,3\)
- other *Candida* species or yeasts such as *C. glabrata, C. tropicalis, C. krusei, C. parapsilosis,* and *Saccharomyces cerevisiae* in the remainder

Despite the widespread availability of antifungal agents in the UK and other countries there has not been a significant increase in azole resistance in *C. albicans* species or increased prevalence of non-albicans *Candida* species. \(^3-5\) There remains conflicting evidence on the virulence of non-albicans *Candida* species compared with *C. albicans*. \(^6,7\)

An estimated 75% of women will have at least one lifetime episode of VVC, and 40%-45% will have two or more episodes. \(^8\) Previous studies have reported that approximately 5% of women of reproductive age with a primary episode of VVC will develop recurrent disease. \(^9,10\) A large internet-based survey across five European countries (including the UK) and the US found that over 20% of women reporting at least one episode of vaginal yeast infection also reported a 12-month period with four or more infections. The probability of developing recurrent VVC after an initial infection was 10% by the age of 25 years and 25% by the age of 50 years. \(^11\)

Risk factors and pathogenesis

Recurrent and chronic VVC are thought to be related to host factors rather than a more virulent strain or the reintroduction of the organism to the genital tract. The majority are usually due to *C. albicans*. \(^12\) For many women an identifiable host factor is not found but can include:

- persistence of *Candida* sp (as detected by PCR although culture-negative between attacks) \(^13\)
- poorly controlled diabetes mellitus
• immunosuppression
• hyperoestrogenaemia (including HRT and the combined oral contraceptive pill) \(^{14-18}\)
• recent (up to three months before the episodes) antibiotic use causing a disturbance in the vaginal flora \(^{14, 19, 20}\)

Studies have also identified a link to allergy (allergic rhinitis, asthma and hay fever) \(^{17, 21}\) and pro-inflammatory genetic markers. However women suffering from allergic diseases are more likely to have used corticosteroids, so it is unclear as to whether the steroid use, or concomitant atopic disease makes them more susceptible. \(^{17}\) Perceived increased stress and a lower mean cortisol (which may correspond to chronic stress) have been weakly associated with recurrent VVC however the evidence is limited and further research is required. \(^{22}\)

It is unclear if iron deficiency anaemia is associated with recurrent VVC. A previous study found no evidence of low iron levels in women with VVC \(^{23}\) however a more recent study suggests a possible link between iron deficiency anaemia and recurrent VVC. \(^{24}\) The earlier study reported statistically significant lower serum level of zinc, magnesium and calcium in patients with recurrent VVC, although all levels were still within the normal range; other studies have not supported the link with serum zinc levels. \(^{23, 25}\)

Mannose binding lectin (MBL) deficiency is genetic condition that affects the immune system. Several studies have shown that MBL codon 54 gene polymorphism is associated with recurrent and acute VVC. In particular, possessing the MBL variant allele B heterozygous genotype increases the susceptibility of women to recurrent or acute VVC compared to healthy controls, while the risk of recurrent VVC is also increased for women carrying the allele B homozygote genotype. \(^{26-28}\)

**CLINICAL FEATURES**

Vulvovaginal candidiasis (VVC) typically presents with: \(^{29-33}\)

- vulval itch
- a non-offensive vaginal discharge

Other symptoms can include: \(^{29, 32-34}\)

- soreness or burning
Clinical signs may include:\textsuperscript{29-34} 

- erythema 
- fissuring 
- swelling/oedema 
- vaginal discharge typically non-offensive and curdy but may be thin or absent 
- there may also satellite lesions and excoriation marks 

None of these features are pathognomonic for VVC and there can be a significant discrepancy between symptoms and signs particularly in chronic disease.\textsuperscript{34, 35} Although \textit{Candida albicans} is the most pathogenic of the \textit{Candida} species clinical symptoms or signs cannot be used to guide which \textit{Candida sp} is the cause for the infection.\textsuperscript{35, 36} Health-related quality of life both physical and psychological is significantly affected in recurrent VVC.\textsuperscript{32} 

\textbf{Differential diagnoses and colonisation} 

- Many women (more than half of self-diagnosed women in one study\textsuperscript{37}) presenting with these symptoms may have other conditions such as: 
  - dermatitis/eczema 
  - lichen sclerosus 
  - other infections 
  - vulvodynia 
- the preponderance of certain symptoms and signs, whilst not pathognomonic can be more suggestive of other conditions (table 1 and 2) 
- it should also be noted that some women may have dual pathology with VVC and one of these other conditions 
- up to 20\% of women during reproductive years may be colonized with \textit{Candida} spp. but have no clinical signs or symptoms;\textsuperscript{38,39} these women do not require treatment
it is also possible that women with vulval symptoms due to other conditions (such as eczema, lichen sclerosus) may have colonization with *Candida* which is not necessarily contributing to the symptoms.

**DIAGNOSIS**

- Vulvovaginal candidiasis (VVC) is a clinical diagnosis based on typical features supported by laboratory confirmation of *Candida* sp. from a vaginal sample.
- In women presenting with clinical features of acute VVC to a service providing level 3 STI care supporting the diagnosis with routine microscopy is good clinical practice $^{35, 40-45}$ (Grade 1B) (figure 1).
- Recurrent or chronic VVC is defined as four or more symptomatic episodes over a 12-month period; at least two of these episodes should be confirmed by microscopy or culture, one of these should be a positive culture with moderate or heavy growth of *Candida* sp. $^{46-49}$ (Grade 1C).

**Clinical examination and syndromic management**

- Clinical examination of the external genitalia is recommended in women presenting with symptoms suggestive of acute VVC in order to exclude alternative or co-existing vulvovaginal pathologies.
- Women presenting with features suggesting recurrent or chronic VVC should always have a clinical examination $^{50}$ (Grade 1C).
- Empirical treatment for acute VVC based on the reported symptoms may be given in non-specialist settings $^{51}$; if the symptoms do not resolve, or if they recur, examination and microbiological testing (as below) should be performed $^{50}$.

**Microscopy**

- A vaginal swab taken from the anterior fornix $^{52}$ (Grade 1C) for Gram stain and/or dark field wet film microscopy.
- Presence of spores, pseudohyphae and neutrophils is indicative of infection caused by *Candida* species.
- Presence of spores only and neutrophils may reflect infection caused by *C. glabrata*.
Neutrophils in vaginal secretions suggest an inflammatory response and therefore presence of infection which may or may not be due to Candida seen on microscopy. Absence of neutrophils in the presence of Candida is likely to represent colonisation.

**Culture**

**Acute VVC:**
- fungal culture is no longer considered a cost-effective addition to microscopy nor a reliable test on its own for the diagnosis of VVC due to its inability to differentiate colonisation from infection.

**Recurrent or chronic VVC:**
- a vaginal swab should be taken from the anterior fornix \textsuperscript{52} (Grade 1C) for direct plating onto solid fungal growth medium (Sabouraud plate)
- any fungal growth should ideally be identified to species level, or at least as \textit{C. albicans}/non-\textit{albicans Candida} \textsuperscript{46-49} (Grade 1B) and sensitivity to fluconazole tested
- mixed infection with \textit{C. albicans} and a non-\textit{albicans Candida} species are not rare and should be sought for in the laboratory
- in cases of recurrent or chronic VVC with poor or partial response to therapy, full speciation and sensitivity testing to fluconazole, clotrimazole, flucytosine, amphotericin B and nystatin is preferred
- of note clotrimazole is broader spectrum and used at higher concentrations than fluconazole so fluconazole susceptibility cannot be used as a marker for clotrimazole resistance
- where clinical examination is not possible or required self-collected vaginal swab for microscopy and or culture is a reasonable alternative to clinician taken samples \textsuperscript{53} (Grade 1C)
- self-collected swabs done at home can be considered in recurrent or chronic VVC where initial samples collected in clinic have come back negative \textsuperscript{54,55} (Grade 2C)
- for patients reporting poor or partial response to sensitivity guided antifungal therapy a negative post-treatment fungal culture (implying mycological cure) indicates the need to consider alternative or additional diagnoses with similar clinical features.
Interpretation of anti-fungal sensitivity testing

- It is useful to know that standard *in vitro* susceptibility testing for *Candida* spp. is performed at pH 7.0 because the activity of most azole antifungals is significantly decreased in acidic environment.

- In cases of VVC, the vaginal pH is usually in the range of 4 to 4.5, therefore, isolates with elevated MICs are unlikely to respond to standard doses of azole treatment despite still designated as susceptible:
  - e.g. *C. glabrata* has variable intrinsic resistance to azole antifungals and their marginal efficacy is lost at pH 4.5.

- If standard neutral pH is used for susceptibility testing caution is needed when interpreting the results as standard breakpoints may not apply. (Grade 1B)

Molecular and point of care testing for VVC

A number of studies have looked at molecular and rapid antigen detection point of care tests for *Candida*. There are significant differences between the tests and their sensitivity and specificity when compared with the agreed standard of care (microscopy and culture). Some tests are highly sensitive and unable to differentiate between colonization and infection. Further research and evaluation of cost-effectiveness is required before any recommendations can be made regarding their use in level 3 STI services.

STI screening

VVC is not a sexually transmitted infection (STI) or a marker for STIs. The offer of STI screening should be based on a risk assessment and consideration that some of the clinical features of VVC are similar to those of STIs. For comprehensive guidance on screening for STIs please refer to the 2015 BASHH CEG group guidance on tests for STIs [https://www.bashhguidelines.org/media/1084/sti-testing-tables-2015-dec-update-4.pdf].
MANAGEMENT

General advice for all women with VVC symptoms

Patients should also be provided with information about the importance of good skin care:

- avoiding the use of local irritants such as perfumed soaps or wipes
- the use an emollient cream for personal hygiene as a soap substitute, as a moisturiser and a barrier cream (patient needs to be informed that this does not constitute “internal use”).

General advice for recurrent and chronic VVC

In patients with recurrent or chronic VVC careful review of their daily hygiene routine may identify potential local irritants not perceived as such by the patient for example washing hair in bath water or excessive cleaning. (grade 2D) No genital hygiene practices have been definitively linked with recurrent or chronic VVC however a number have shown weak associations which may be worth considering in certain patients:

- wearing of tight fitting synthetic clothing \(^{14, 60, 61}\) (grade 2C)
- using intermenstrual or daily panty liners \(^{61-64}\) (grade 2C)
- vaginal douching \(^{20, 61, 65, 66}\) (grade 2C)

Vulval emollients may give symptomatic relief as vulval dermatitis (eczema) both primary and secondary is commonly present.

An association between sexual intercourse and Candida colonisation levels or vaginal symptoms has not been identified although there is a paucity of research in this area. \(^{67}\) Patients reporting a link between symptoms and sexual activity may wish to consider the use of a gentle water-based lubricant. (grade 2D)

Further Investigation

No additional investigations are routinely recommended in patients presenting with acute VVC unless clinically indicated.

In recurrent or chronic VVC screening for the following conditions may be considered particularly if there are additional indicators:

- diabetes with urinalysis or random blood glucose (grade 2C)
• iron-deficiency anaemia with a full blood count or serum ferritin (grade 2C)
• mannose binding lectin deficiency* (grade 2B)

*Some women with recurrent VVC can spend considerable time searching for answers as to why they are affected by the condition often trialing extreme lifestyle measures to reduce symptoms. Identifying MBL deficiency or the MBL 54 gene polymorphism may help a patient better understand their condition, offer additional reassurance and reduce the need for significant lifestyle changes that can impact on quality of life and are unlikely to improve symptoms. Additionally, patients with the B allele polymorphism have been found to have an improved response to a reducing maintenance regimen with fluconazole therapy.27 (grade 2C)

TREATMENTS

Acute VVC

Treatment choice:
Studies and data published over the past 10 years on the treatment of acute vulvovaginal candidiasis (VVC) support the treatment regimen recommended in the 2007 guidelines:
• all intravaginal imidazoles and oral azoles give a clinical and mycological cure rate of over 80% in acute VVC68,69 (Grade 1B)
• intravaginal imidazoles and oral azoles are equally effective and tolerable in the management of acute VVC with no difference in treatment outcomes69-72 (Grade 1B)
• recommended and alternative regimens have been made for this guideline update based on differences in cost and convenience of dosing:
  o Fluconazole 150mg stat PO is the recommended treatment for acute VVC due to comparative cost and convenience of the stat dose (7-30 times cheaper than all other listed regimens; current UK prices June 2018)
  o Clotrimazole 500mg pessary PV stat is the recommended topical treatment when an oral imidazole is contraindicated, due to comparative cost (with other topical agents) and convenience of the stat dose (current UK list prices June 2018)
• one RCT suggested that a single dose of oral fluconazole may be more effective than prolonged intravaginal clotrimazole 200mg (for 6 days) at clinical cure at 7 days. \(^70\) (Grade 1C)

**Treatment considerations:**

• oral therapies must be avoided in pregnancy, risk of pregnancy and breast feeding\(^39,60,69\) (Grade 1B)
• oral azoles also prolong the QT time and caution should be taken if prescribed in combination with other drugs with a similar effect
• as there is minimal absorption of topically applied imidazoles from the vulvo-vaginal mucosae there is limited risk of systemic side effects
• topical therapies can cause vulvovaginal irritation and this should be considered if symptoms worsen or persist
• intravaginal and topical treatments can also damage latex condoms and diaphragms with case reports of unplanned pregnancies \(^70\); women must be appropriately counselled about this risk
• a medication history should be taken to advise women that oral fluconazole and other azoles as can interact with medications; fluconazole is a potent inhibitor of cytochrome P450 (CYP) isoenzyme 2C9 and a moderate inhibitor of CYP3A4O

Nystatin preparations give a 70-90% cure rate in the setting of acute VVC. \(^39\) There is insufficient evidence to show a significant difference between intravaginal imidazoles and nystatin pessaries in the treatment outcomes. There is data showing that intravaginal nystatin is well tolerated with cure rates comparable to fluconazole. \(^73\) One study showed that boric acid was cheap and tolerable to use in the treatment of acute VVC. \(^74\) However:

• both nystatin and boric acid are unlicensed drugs and should be reserved for the management of infections caused by azole resistant *Candida* strains.

**Recommended regimen:**

• Fluconazole\(^*\) capsule 150mg stat PO (1B)
Recommended topical regimen (if oral therapy contraindicated):

- Clotrimazole pessary 500mg stat PV** (1B)

Alternative regimens:

- Clotrimazole vaginal cream (10%) 5g stat** (1B)
- Clotrimazole pessary 200mg nocte for 3 days or 100mg nocte for 6 days** (1C)
- Econazole pessary 150mg stat or 150mg nocte for 3 days** (1B)
- Fenticonazole pessary 600mg stat or 200mg nocte for 3 nights** (1B)
- Itraconazole 200mg bd for 1 day PO* (1B)
- Miconazole pessary 100mg nocte for 14 nights** (1B)

* Oral therapies must be avoided in pregnancy, risk of pregnancy and breast feeding 39, 60, 69 (Grade 1B)
** Creams and pessaries may damage diaphragms and latex condoms.

Recurrent VVC

The principle of therapy involves an induction regimen to ensure clinical remission, followed immediately by a maintenance regimen:

- Fluconazole 150mg every 72 hours for 3 doses followed by 150mg weekly for a six-month period has been shown to have good efficacy and tolerability in two randomized control trials achieving clinical remission in 82-90% 75 (Grade 1A)
- Fluconazole reduced the frequency of recurrent VVC in 88% immediately after the cessation of therapy, 64% at 3 months after and 61% at 6 months after the end of treatment 75
- when oral therapy needs to be avoided 500 mg of intravaginal clotrimazole administered weekly may used as an alternative (Grade 1B)
- there is no evidence for the superiority of itraconazole over fluconazole and microbiological cross-resistance is common whereby it is not likely to be helpful in clinically fluconazole-resistant cases
1. if a patient relapses between doses consider twice-weekly 150mg fluconazole or 50mg fluconazole daily; (Grade 2C) alternatively consider the addition of cetirizine 10mg od

3. there is a low risk of idiosyncratic drug-induced hepatitis with oral azoles, although fluconazole is less frequently associated with hepatotoxicity than itraconazole (see later ‘Reactions to treatment’); the production of Ketoconazole has stopped globally due to toxicity.

6. There are no trials addressing the optimal duration of suppressive therapy with the majority of trials using 6 months maintenance as standard:

9. if recurrences after maintenance regimen are infrequent, each episode should be treated independently

11. if recurrent disease is re-established the induction and maintenance regimens should be repeated (Grade 2C)

14. One study achieved clinical remission in 90% of women at 6 months and 77% of women at 12 months using an individualized reducing regimen of fluconazole. However it is not clear how this strategy compares to the standard 6 month regimens. A study comparing these strategies is required before recommendations on reducing regimens can be made.

Recommended Regimen:

- **Induction**: fluconazole 150mg every 72 hours x 3 doses* (1A)
- **Maintenance**: fluconazole 150mg once a week for 6 months* (1A)

Alternative Regimens:

- **Induction**: topical imidazole therapy can be increased to 10-14 days according to symptomatic response (Grade 2C)

- **Maintenance for 6 months**:
  - Clotrimazole pessary 500mg once a week (1B)
  - Itraconazole 50-100mg daily*(2C)
* Oral therapies must be avoided in pregnancy, risk of pregnancy and breast feeding \(^{39, 60, 69}\) (Grade 1B)

Chronic VVC

Patients reporting chronic, continuous symptoms, which may improve during menses and remit with antifungal therapy have only recently been recognized as having a distinct condition to recurrent VVC \(^{33}\):

- symptoms often recur when therapy is stopped, particularly after short course therapy
- management is often challenging and further research into appropriate treatment strategies and duration is needed
- general advice should be given as above
- suppressive treatment regimens such as those recommended for recurrent VVC should be trialed
- rescue doses of antifungal therapy during antibiotic courses may be considered, especially if this was a known previous precipitant of flares \(^{33}\) (Grade 2C)
- refer patients in this category to specialized vulval services.

One retrospective study of 208 patients found long-term maintenance regimens of fluconazole or itraconazole were well tolerated in women with chronic VVC (mean duration of follow up 26.2 months; range 5 months to 8.5 years). \(^{78}\) A study comparing maintenance regimens and durations is required before specific recommendations can be made.

It’s important to note that patients reporting recurrent episodes or chronic symptoms of VVC with poor or partial response to therapy may have a non-albicans \(Candida\) species and/or azole resistance. A sustained resolution of symptoms may be achievable for these patients with the correct treatment following species identification with antifungal sensitivity testing.
Non-albicans Candida species and azole resistance

- *Candida albicans* is normally susceptible to all yeast-active antifungals although resistance may rarely develop on prolonged or repeated azole treatment courses; resistance to other yeast-active antifungals is very rare
- The most common non-albicans *Candida* species causing vulvovaginitis are *Candida glabrata* and *Candida krusei*:
  - These can be the sole cause of infection or in combination with *C. albicans*
  - Most vaginal *C. glabrata* strains are reported as susceptible to azoles but with elevated MICs and often with poor clinical response to standard dose treatment
  - *Candida krusei* is intrinsically resistant to fluconazole
- Some non-albicans *Candida* species such as *C. guilliermondii* and *C. parapsilosis* are normally susceptible to azoles and patients clinically respond to treatment with these
- For an infection caused by an azole resistant *Candida* species longer courses are advised although there is no data on optimum duration; two weeks is suggested
- For isolates with an elevated MIC but still designated susceptible, higher and more frequent dosing of fluconazole may be effective (200-300 mg od over 48 hrs for 1 week)

Treatment options and availability:

Nystatin pessaries are the only licensed alternative to azole therapy and are therefore the usual first line treatment for non-albicans *Candida* infection. (Grade 1B) Unfortunately the licensed nystatin product is no longer available (March 2018). Various unlicensed brands of Nystatin pessaries are available but some are imported so the patient information leaflet may not be in English and there have been intermittent supply issues. An alternative would be local pharmacy production of Amphotericin B vaginal suppositories 50mg once a day for 14 days which is has a 70% success rate but there can also be sourcing difficulties. (Grade 2C)

Boric acid vaginal suppositories 600mg daily for 14 days are a safe and effective alternative. (Grade 1B) If mucosal irritation occurs the dose can be reduced to 300mg daily (additional cost likely as it needs to be compounded specially). There may be a teratogenic risk so boric acid should be avoided in pregnancy or risk of pregnancy.

Intravaginal fluclucytosine (5g cream or 1g pessary) either alone or with amphotericin to reduce the chances of resistance (for which there is a low genetic barrier) can also be used for two weeks. (Grade 2C)
In patients with recurrent or chronic VVC due to fluconazole resistant *Candida* species, 14 days of nystatin pessaries a month for 6 months has been shown to be effective and is more likely to achieve mycological cure than fluconazole regimens. 86 (Grade 2C) There is no evidence for the treatment protocols for the alternative treatment options but it would seem reasonable to consider extrapolating this suggested regimen of 14 days a month for 6 months to the alternative options. (Grade 2D)

There are no studies where the efficacy and tolerability of these drugs has been compared. Where there is reduced sensitivity increasing the dose or combining topical and oral agents may be beneficial.

**Recommended Regimen:**

- Nystatin pessaries 100,000 units nocte for 14 days (1B)

**Alternative Regimens:**

- Boric acid suppositories 600mg daily for 14 days* (1B)
- Amphotericin B vaginal suppositories 50mg once a day for 14 days (2C)
- Fluconosine 5g cream or 1g pessary +/- amphotericin daily for 14 days (2C)

**Recurrent or chronic VVC due to azole resistant *Candida*:**

- Nystatin pessaries 100,000 units nocte for 14 days/month for 6 months (2C)
- Consider 14 days per month for 6 months of the alternative regimens (2D)

*Avoid in pregnancy or risk of pregnancy

**Severe Vulvovaginal Candidiasis**

In patients with severe VVC (i.e., extensive vulvar erythema, oedema, excoriation, and fissure formation) 87 regardless of a history of recurrence, fluconazole 150mg should be repeated after three days as this improves symptomatic response but does not influence the risk or rate of recurrence. 88 (Grade 1B) There is no benefit of a seven day topical treatment course over a single
oral dose of fluconazole. If oral treatment is contra-indicated it is more logical to repeat a single dose pessary after three days. Two doses of clotrimazole 500mg vaginal tablet or miconazole nitrate vaginal suppository 1,200 mg were as effective as two doses of an oral fluconazole 150 mg regimen in the treatment of patients with severe VVC. (Grade 1B). Due to significant differences in cost fluconazole is the recommended regimen.

Recommended regimen:

- Fluconazole 150mg on day 1 and 4 (1B)

Alternative regimens:

- Clotrimazole 500mg tablet or pessary on day 1 and 4 (1B)
- Miconazole nitrate vaginal suppository 1200mg on day 1 and 4 (1B)

Low-potency corticosteroids are also thought by some experts to improve symptomatic relief in conjunction with adequate antifungal therapy. (Grade 2D)

Pregnancy & Breastfeeding

- Asymptomatic colonization with Candida species is more common (30-40%) and symptomatic candidiasis is more prevalent throughout pregnancy
- oral therapies must be avoided in pregnancy, risk of pregnancy and breast feeding (Grade 1B)
- topical imidazoles should be used for symptomatic VVC in pregnancy and breast feeding (Grade 1B)
- there is no evidence that any one topical imidazole is more effective than another
- longer courses are recommended in pregnancy; a four day course will cure just over 50% whereas a seven day course cures over 90%. (Grade 1B)
Fluconazole in pregnancy

Given the conflicting evidence we continue to advise against the use of fluconazole and other oral azoles in pregnancy (Grade 1B):

- there is accumulating evidence that that treatment with fluconazole in the first trimester does not appear to increase the overall risk of congenital malformations although one study reported a possible link with tetralogy of Fallot\(^\text{94}\)
- the United States National Birth Defects Prevention Study (NBDPS) found associations between fluconazole use in the first trimester of pregnancy with cleft lip with cleft palate and d-transposition of the great arteries although overall fluconazole use in the NBDPS was low\(^\text{95}\)
- a nationwide register-based cohort study in Denmark (1997-2013) with a cohort of 1405500 pregnancies found a statistically significant increased risk of spontaneous abortion in women exposed to fluconazole between 7-22 weeks gestation compared with risk among unexposed women and women with topical imidazole exposure in pregnancy.\(^\text{96}\)

VVC and pregnancy outcome

- Previous studies did not find evidence of an association between *Candida* colonization and premature delivery or low birth weight.\(^\text{97-99}\)
- Currently there is very limited evidence around the significance of detecting asymptomatic VVC in pregnancy and the theoretical risk of pre-term birth or low birth weight; in the absence of well designed studies we are not in a position to make specific recommendations.

Recommended regimens (Acute VVC):

- Clotrimazole pessary 500mg PV nocte for 7 days (1B)

Alternative regimens (Acute VVC):

- Clotrimazole vaginal cream (10%) 5g nocte for 7 days** (1C)
- Clotrimazole pessary 200mg or 100mg nocte for 7 days** (1C)
- Econazole pessary 150mg nocte for 7 days** (1C)
- Fenticonazole pessary 600mg stat or 200mg nocte for 7 days** (1C)
- Miconazole pessary 100mg nocte for 14 nights** (1C)

Recommended regimen (Recurrent/Chronic VVC):
- **Induction**: topical imidazole therapy can be increased to 10-14 days according to symptomatic response (Grade 2C)
- **Maintenance**: Clotrimazole pessary 500mg weekly (1C)

Breastfeeding:
- Treatment regimens using topical imidazoles only should be as per the recommendations listed above for non-pregnant women with acute, recurrent and chronic VVC.

Alternative or Supplementary Treatments

Proven benefit:
- **Antihistamines**:
  - Zafirlukast 20mg bd for 6 months may induce remission. 109
  - Zafirlukast may be considered as maintenance prophylaxis for recurrent VVC, particularly in women with a history of atopy16
  - Cetirizine 10mg daily for 6 months may cause remission in women who fail to get complete resolution of symptoms with suppressive fluconazole. 76 (Grade 1C)

Insufficient or no evidence of benefit:
- **Probiotics**: there continues to be insufficient evidence to support the use of oral or vaginal probiotics (mainly Lactobacilli) for the treatment or prevention of VVC:
  - An increasing number of studies suggest that their adjunctive use may improve clinical outcomes or reduced the likelihood of recurrence 70, 101, 102
  - However, the quality of evidence is variable and inconsistent in terms of the probiotic or regimen used 103, 104
• The mode of action might be via modulation of inflammatory processes rather than competition with *Candida*.  

- Tea tree and other essential oils: are antifungal in vitro but they may cause hypersensitivity reactions.  
  
- Dermasilk® briefs: are made of a pure fibroin fabric impregnated with a permanent antimicrobial protection. Small studies have shown a reduction in itching, burning, erythema and recurrences than cotton briefs in women with recurrent VVC on a standard fluconazole suppressive regimen.  

- Yoghurt and honey mixes: there is insufficient evidence to support the use of vaginal applications of yoghurt and honey mixes although there have been some reports of benefit with symptom improvement.  

- Diet: there is no evidence to support any dietary modifications, including reducing carbohydrate or yeast intake.  

- Oral garlic: there is no evidence of benefit from oral garlic on *Candida* colonization. Observational studies have shown that garlic taken orally may cause heartburn, nausea, diarrhoea, flatulence, bloating, and an offensive body odour.  

Diabetes Mellitus  
Symptomatic VVC is more prevalent in diabetic women and most problematic in those with poor glycaemic control. Non-albicans *Candida* species are more prevalent than in non-diabetic women, in particular *C. glabrata*. In diabetic women with symptomatic VVC where *C. albicans* is isolated single-dose fluconazole (150mg) gives a similar response to non-diabetics. (Grade 1C) In diabetic women with symptomatic VVC due to *C. glabrata* treatment with boric acid 600mg intravaginal suppository once a day for 14 days achieved a higher mycological cure rate at 15 days compared to fluconazole 150mgs stat. (Grade 1B)  

Recommendations:  
- Known diabetic women with poor glycaemic control should be encouraged to improve this
• Fluconazole 150mg stat dose for confirmed *C. albicans* in diabetic women with acute VVC (1C)

• Boric acid 600mg intravaginal suppository once a day 14 for confirmed *C. glabrata* in diabetic women with acute VVC (1B)

### HIV Infection

VVC occurs more frequently and with greater persistence in HIV-infected women. Increased HIV shedding in the vagina, plasma HIV load above 1000 copies/mL, CD4 lymphocyte count below 200 cells/mm$^3$ and the absence of antiretroviral therapy (ART) have been associated with an increased risk of symptomatic VVC. There is no evidence to suggest that HIV-infected women respond less well to conventional methods than HIV-negative women. Treatment for HIV-infected women should be as for HIV-negative women following the recommendations above including the use of suppression therapy as necessary. (Grade 1C)

It is important to state that VVC is not a risk factor in the acquisition of HIV.  

### Recommendation:

• Treatment regimens for HIV-positive women should be the same as for HIV-negative women (1C)

• Please refer to [www.hiv-druginteractions.org.uk](http://www.hiv-druginteractions.org.uk) to check for drug interaction between antifungals and antiretrovirals.

### Hormones and Contraception

In immunocompetent women there is a strong link between *Candida* and hormonal status. This is evidenced by *Candida* species only being found in pubertal/post pubertal and not pre-pubertal females. Also postmenopausal women taking HRT are significantly more prone to develop VVC than women who are not and those with VVC are likely to have been susceptible to it before menopause.

There is some evidence that combined oral contraceptive (COC) users may have an increased risk of VVC however there are inconsistencies with some studies not finding an association and the quality of the evidence is mixed. Women with recurrent or chronic VVC using the COC may wish to
trial alternative contraception but should be cautioned that the evidence supporting the association between the COC and VVC is weak. (Grade 2C)

There is limited evidence for the progestogen-only injection with one systematic review identifying four studies with conflicting results (two found no difference in VVC compared with controls, one found a significant decreased risk and one found a significant increased risk of VVC).¹¹⁹ There is no available evidence regarding the progestogen-only pill or implant or vaginal rings in relation to VVC. While there is some evidence of higher rates of Candida infection in copper intrauterine device (Cu-IUD) and levonorgestrel intrauterine system (LNG-IUS) users, other studies show an increase in Candida present but no difference in symptomatic cases.¹²²⁻¹²⁵

Recommendations:

- HRT is associated with an increased risk of VVC
- Women with recurrent or chronic VVC using the COC may wish to trial alternative contraception but should be cautioned that the evidence supporting the association between the COC and VVC is weak (2C)
- Cu-IUD/LNG-IUS users with recurrent or chronic VVC may wish to consider an alternative method of contraception* (2C)

*The Cu-IUD and LNG-IUS are highly effective methods of contraception particularly the Cu-IUD in patients unable to tolerate hormonal methods. Removal of either device should only be considered if a suitably effective alternative can be used. A careful risk-benefit assessment should be made taking into consideration that keeping the Cu-IUD or LNG-IUS and controlling the recurrent VVC symptoms may be a more appropriate option for some patients.

Reactions to Treatment

- The most common treatment-related adverse events reported in the patients who received 150 mg single dose fluconazole for VVC were headache, nausea, and abdominal pain.
- Anaphylaxis has been reported rarely with fluconazole and itraconazole
- There is a low risk of idiosyncratic drug-induced hepatitis with oral azoles; fluconazole is less frequently associated with hepatotoxicity than itraconazole
oral azoles also prolong the QT time and caution should be taken if prescribed in combination with other similar drugs.

- topical azole therapies and other topical agents can cause vulvovaginal irritation and this should be considered if symptoms worsen or persist.

FOLLOW-UP
- Follow-up and test of cure for patients with acute VVC is unnecessary if symptoms resolve.
- Patients with recurrent or chronic VVC should be advised to return if they experience poor or partial response to therapy; repeat microscopy and culture is indicated to assess for microbiological cure or new resistance.
- Patients that demonstrate microbiological response but not clinical response to therapy should be reassessed for alternative causes of their symptoms.
- On completion of suppressive therapy patients should be advised about the management of future acute episodes (as per acute VVC) and when to return for review (e.g. if frequency of recurrence >4 episodes per year or acute symptoms don’t settle with treatment).

CONTACT TRACING & TREATMENT
There is no evidence to support the treatment of asymptomatic male sexual partners in any of acute, recurrent or chronic VVC (Grade 1A).

CONSIDERATION OF RESOURCE IMPLICATIONS
- It is acknowledged that some tests, e.g. for the precise speciation of *Candida*, may not be able in all settings.
- Some treatment preparations, e.g. flucytosine cream, may not be available on local formularies.
  It is advised that such preparations are discussed with the unit pharmacist prior to prescribing.
QUALIFYING STATEMENT

The recommendations in this guideline may not be appropriate for use in all clinical situations. Decisions to follow these recommendations must be based on the professional judgement of the clinician and consideration of individual patient circumstances and available resources.

All possible care has been taken to ensure the publication of the correct dosage of medication and route of administration. However, it remains the responsibility of the prescribing physician to ensure the accuracy and appropriateness of the medication they prescribe.

AUDITABLE OUTCOMES

- Fluconazole used first line for acute VVC in non-pregnant women and women with no evidence of pregnancy risk. Target 97%.
- All women with recurrent or chronic VVC to be offered a genital examination performed by an appropriately trained clinician. Target 97%
- All women with suspected recurrent or chronic VVC should have microscopy and/or culture with full speciation and sensitivity testing for at least 2 (of the ≥4 per year) episodes (including at least one culture). Target 97%.
- Documentation of a discussion around the offer of suppressive or alternative long term therapy for all women with proven recurrent and chronic VVC. Target 97%
- Documentation of a discussion about what constitutes good vulval skin care for all women with recurrent or chronic VVC. Target 97%

RECOMMENDATIONS FOR FUTURE RESEARCH

- Further assessment of sensitivity and specificity of molecular and rapid antigen detection point of care diagnostic tests and the value of their use in a service providing level 3 STI care
- Appropriate regimen and duration of therapy for women that have a recurrence of symptoms after completing 6 months of treatment for recurrent or chronic VVC
• Further assessment of the benefit of treating asymptomatic colonization with *Candida* in pregnancy on pregnancy outcome

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Stephen Woods (Deputy Library Manager, Academy Library, Wythenshawe Hospital, Manchester University Hospitals NHS Foundation Trust, Manchester, UK) for performing the literature searches and obtaining full text articles for review.

Two patient representatives from clinics of the writing group reviewed the first draft of the guideline. They provided feedback from their perspective as a patient, in particular looking at:

- treatment preferences
- ensuring the guideline covers all issues important to patients
- the language of the guideline is appropriately respectful to patients (acknowledging the intended audience is healthcare professionals).

REFERENCES


21. Moraes PS. Recurrent vaginal candidiasis and allergic rhinitis: a common association. Ann Allergy


EDITORIAL INDEPENDENCE

This guideline was commissioned, edited and endorsed by the BASHH CEG.

CONFLICTS OF INTEREST

All members of the guideline writing committee completed the BASHH conflict of interest declaration at the time the guideline’s final draft was submitted to the CEG.

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17. Dr Darren Cousins
18. Dr Ann Sullivan
19. Dr Helen Fifer
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<table>
<thead>
<tr>
<th></th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Dr Sarah Flew</td>
</tr>
<tr>
<td>2</td>
<td>Dr Cara Saxon</td>
</tr>
</tbody>
</table>
Table 1. Clinical Features of Vulvovaginal Candidiasis and Common Differential Diagnoses – Symptoms*

<table>
<thead>
<tr>
<th></th>
<th>Vulvovaginal Candidiasis</th>
<th>Lichen Sclerosus</th>
<th>Vulvo- / vestibulodynia</th>
<th>Contact Dermatitis/Eczema</th>
<th>Chronic Lichen Simplex/Chronic Eczema</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Vulval Itch</strong></td>
<td>Yes</td>
<td>Yes, severe</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Vulval soreness</strong></td>
<td>Yes – but not always; ‘prickling’</td>
<td>Yes, severe</td>
<td>Burning is predominant symptom</td>
<td>Yes</td>
<td>Possible</td>
</tr>
<tr>
<td><strong>Discharge</strong></td>
<td>Yes - odourless, typically ‘curdy’ but may be thin or absent (absence doesn’t exclude diagnosis)</td>
<td>No*</td>
<td>No*</td>
<td>Possible, but this is exudate from inflamed skin, not a true discharge</td>
<td>No*</td>
</tr>
<tr>
<td><strong>Superficial Dyspareunia</strong></td>
<td>Possible</td>
<td>Yes (especially if loss of vulval architecture)</td>
<td>Yes – point penetration pain</td>
<td>Possible</td>
<td>Possible</td>
</tr>
<tr>
<td><strong>Superficial dysuria</strong></td>
<td>Possible</td>
<td>Possible</td>
<td>Not usually</td>
<td>Possible</td>
<td>Not usually</td>
</tr>
<tr>
<td><strong>Swelling</strong></td>
<td>Possible</td>
<td>No</td>
<td>No</td>
<td>Possible</td>
<td>Possible (secondary to lichenification – thickening of skin from chronic scratching)</td>
</tr>
<tr>
<td><strong>Response to topical steroid</strong></td>
<td>Improvement/no change/worse</td>
<td>Improvement but requires high potency</td>
<td>No</td>
<td>Improvement</td>
<td>Improvement</td>
</tr>
</tbody>
</table>

* the symptoms and signs listed in this table are not pathognomonic of the conditions but an indication of a ‘typical clinical presentation’ and to highlight the potential differences and similarities between each of these conditions, further information about the alternative conditions listed can be found at www.bad.org.uk

* unless dual pathology
Table 2. Clinical Features of Vulvovaginal Candidiasis and Common Differential Diagnoses – Signs*

<table>
<thead>
<tr>
<th></th>
<th>VV Candidiasis</th>
<th>Lichen Sclerosus</th>
<th>Vulvodynia</th>
<th>Contact Dermatitis</th>
<th>Chronic Lichen Simplex</th>
</tr>
</thead>
<tbody>
<tr>
<td>Erythema</td>
<td>Yes</td>
<td>Yes but usually in conjunction with other features</td>
<td>Possible</td>
<td>Yes</td>
<td>Possible</td>
</tr>
<tr>
<td>Fissuring</td>
<td>Possible</td>
<td>Possible</td>
<td>No</td>
<td>Possible</td>
<td>Possible</td>
</tr>
<tr>
<td>Discharge</td>
<td>Yes - odourless, typically ‘curdy’ but may be thin or absent (absence doesn’t exclude diagnosis)</td>
<td>No⁺</td>
<td>No⁺</td>
<td>Possible, but this is exudate from inflamed skin, not a true discharge</td>
<td>No⁺</td>
</tr>
<tr>
<td>Oedema</td>
<td>Possible</td>
<td>No</td>
<td>No</td>
<td>Possible</td>
<td>Possible</td>
</tr>
<tr>
<td>Other features</td>
<td>Satellite lesions</td>
<td>Pallor, atrophy, loss of vulval architecture, areas of haemorrhage, introital narrowing</td>
<td>Cotton tip provoked tenderness</td>
<td>Erythema, exudate</td>
<td>Lichenification, (thickening of affected skin caused by long term scratching)</td>
</tr>
<tr>
<td>Excoriations (scratch marks)</td>
<td>Possible</td>
<td>Possible</td>
<td>No</td>
<td>Often</td>
<td>Often</td>
</tr>
</tbody>
</table>

* the symptoms and signs listed in this table are not pathognomic of the conditions but an indication of a ‘typical clinical presentation’ and to highlight the potential differences and similarities between each of these conditions, further information about the alternative conditions listed can be found at [www.bad.org.uk](http://www.bad.org.uk) “ *unless dual pathology
### Table 3. Vulvovaginal candidiasis treatment options

<table>
<thead>
<tr>
<th></th>
<th>Preferred</th>
<th>Alternative</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Acute VVC</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Non-pregnant women</strong></td>
<td>Fluconazole 150mg PO stat (1B)</td>
<td>Clotrimazole vaginal cream (10%) 5g stat** (1B)</td>
</tr>
<tr>
<td></td>
<td><em>If oral therapy is contraindicated:</em></td>
<td>Clotrimazole pessary 200mg nocte for 3 days or 100mg nocte for 6 days** (1C)</td>
</tr>
<tr>
<td></td>
<td>Clotrimazole 500mg PV stat (1B)</td>
<td>Econazol pessary 150mg stat or 150mg nocte for 3 days** (1B)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fenticonazole pessary 600mg stat or 200mg nocte for 3 nights** (1B)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Itraconazole 200mg bd for 1 day PO* (1B)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Miconazol pessary 100mg nocte for 14 nights** (1B)</td>
</tr>
<tr>
<td><strong>Pregnancy</strong></td>
<td>Clotrimazole pessary 500mg PV nocte for 7 days (1B)</td>
<td>Clotrimazole vaginal cream (10%) 5g nocte for 7 days** (1C)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Clotrimazole pessary 200mg or 100mg nocte for 7 days** (1C)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Econazol pessary 150mg nocte for 7 days** (1C)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Miconazol pessary 100mg nocte for 14 nights** (1C)</td>
</tr>
<tr>
<td><strong>NAC sp &amp; azole</strong></td>
<td>Nystatin pessaries 100,000 units nocte for 14 days (1B)</td>
<td>Boric acid suppositories 600mg daily for 14 days* (1B)</td>
</tr>
<tr>
<td><strong>resistance</strong></td>
<td></td>
<td>Amphotericin B vaginal suppositories 50mg once a day for 14 days (2C)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fluocytosine 5g cream or 1g pessary +/- amphotericin daily for 14 days (2C)</td>
</tr>
<tr>
<td><strong>Recurrent or Chronic</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>VVC</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Non-pregnant women</strong></td>
<td>Induction: fluconazole 150mg every 72 hours x 3 doses* (1A)</td>
<td>Induction: topical imidazole therapy can be increased to 10-14 days according to symptomatic response (Grade 2C)</td>
</tr>
<tr>
<td></td>
<td>Maintenance: fluconazole 150mg once a week for 6 months* (1A)</td>
<td>Maintenance for 6 months: Clotrimazole pessary 500mg once a week (1B) or Itraconazole 50-100mg daily* (2C)</td>
</tr>
<tr>
<td><strong>Pregnancy</strong></td>
<td>Induction: topical imidazole therapy can be increased to 10-14 days according to symptomatic response (Grade 2C)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Maintenance: Clotrimazole pessary 500mg weekly (1C)</td>
<td></td>
</tr>
<tr>
<td><strong>NAC sp &amp; azole</strong></td>
<td>Nystatin pessaries 100,000 units nocte for 14 days/month for 6 months (2C)</td>
<td>Consider 14 days per month for 6 month of the alternative regimens (2D)</td>
</tr>
<tr>
<td><strong>resistance</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Severe VVC</strong></td>
<td>Fluconazole 150mg on day 1 and 4 (1B)</td>
<td>Clotrimazole 500mg tablet or pessary on day 1 and 4 (1B)</td>
</tr>
<tr>
<td><strong>Breast feeding</strong></td>
<td>Treatment regimens using topical imidazoles only should be as per the recommendations listed above for non-pregnant women with acute, recurrent and chronic VVC.</td>
<td>Miconazol nitrate vaginal suppository 1200mg on day 1 and 4 (1B)</td>
</tr>
</tbody>
</table>

NAC – Non-albicans Candida; * Oral therapies must be avoided in pregnancy, risk of pregnancy and breast feeding (1B); **Creams and pessaries may damage diaphragms and latex condoms.
Figure 1. Summary of the Vulvovaginal Candidiasis diagnostic and management pathway

**Presentation**
- Acute VVC
- Recurrent VVC
- Chronic VVC

**Diagnostics**
- Microscopy for spores/hyphae (in level 3 GUM setting)
- Microscopy & HVS for fungal culture, identification and sensitivity testing for fluconazole
- Microscopy & HVS for fungal culture, identification and sensitivity testing for fluconazole, clotrimazole, flucytosine, amphotericin B and nystatin

**Therapy**
- 1st line: Fluconazole 150mg PO stat; 2nd line: Clotrimazole 500mg PV*
- Suppressive therapy with induction (150mg 3x/week) then weekly 150mg fluconazole for 6 months*
- 100,000 IU nystatin pessaries for 14 nights*
- 600mg boric acid pessaries for 14 nights*
- Consider alternative or additional diagnoses (lichen sclerosus, vulval pain syndromes, etc)

*See relevant section for more detail and other treatment options