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BASHH British Association for Sexual Health and HIV

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CLINICAL GUIDELINE

British Association of Sexual Health and HIV national guideline for the management of infection with *Mycoplasma genitalium*

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1. CONTENTS

2. ABSTRACT

This guideline provides details on the pathology and clinical features of *Mycoplasma genitalium* infection and makes recommendations for diagnostic tests, treatment regimens and the health promotion principles needed for the effective management of infection, in people aged 16 years or older attending sexual health services. The guideline is primarily aimed at level 3 sexual health services in the UK, although it could also serve as a reference guide for sexually transmitted infections services at other levels. It is updated from the previous guideline published in 2018.

Keywords: Non-gonococcal urethritis, urethritis, *Mycoplasma genitalium*, antimicrobial resistance

3. ABBREVIATIONS

Abbreviation	Definition
AGREE II	Appraisal of Guidelines, Research and Evaluation
AMR	Antimicrobial Resistance
ASHM	Australasian Society for HIV, Viral Hepatitis and Sexual Health Medicine
BASHH	British Association for Sexual Health and HIV
bd	Twice Daily
BHIVA	British HIV Association
BNF	British National Formulary
CEG	Clinical Effectiveness Group
CI	Confidence Interval
ECCMID	European Society of Clinical Microbiology and Infectious Diseases
EQI	Equality Impact Assessment
FDA	Food and Drug Administration
GBMSM	Gay, Bisexual and other Men who have sex with men
GRADE	Grading of Recommendations, Assessment, Development, and Evaluations
GUMCAD	Genitourinary Medicine Clinic Activity Dataset
HIV	Human Immunodeficiency Virus
ICAAC	Interscience Conference of Antimicrobial Agents and Chemotherapy
IUSTI	International Union against Sexually Transmitted Infection, BASHH
MHRA	Medicines and Healthcare Products Regulatory Agency
MIC	Minimal Inhibitory Concentration
MRAM	Macrolide Resistance Associated Mutations
MSW	Men who have sex with Women
NAAT	Nucleic Acid Amplification Test
NCNGU	Non-chlamydial Non-gonococcal Urethritis
NGU	Non-gonococcal Urethritis

Abbreviation	Definition
NHS	National Health Service
od	Once Daily
OR	Odds Ratio
PID	Pelvic Inflammatory Disease
PrEP	Pre-exposure Prophylaxis
SHHAPT	Sexual Health and HIV Activity Property Type
SmPC	Summary of Product Characteristics
STI	Sexually Transmitted Infection
TOC	Test of Cure
UK	United Kingdom
UKHSA	UK Health Security Agency
UKTIS	UK Teratology Information Services

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4. SUMMARY OF MAIN RECOMMENDATIONS

Reference (section, page)	Recommendation	Grading
Testing		
	Test for *M. genitalium* infection in people with NGU	1B
	Test for *M. genitalium* infection in people with signs and symptoms suggestive of PID.	1B
	Test for M. genitalium infection in current sexual partners of *M. genitalium* infected individuals	1D
	Asymptomatic screening for *M. genitalium* is NOT recommended	
Diagnosis		
	First void urine as the specimen of choice in cisgender men	1C
	Vaginal swabs (clinician- or self-taken) as the specimen of choice in cisgender women	1C
	All *M. genitalium*-positive specimens should be tested for the presence of MRAM	1B
Treatment		
Uncomplicated infection		
	Doxycycline 100 mg twice daily (bd) for 7 days followed by azithromycin 1 g orally as a single dose then 500 mg orally od for 2 days* where the organism is known to be macrolide-sensitive or where resistance status is unknown	1C
	Doxycycline 100 mg bd for 7 days followed by moxifloxacin 400 mg orally od for 7 days if organism is known to be macrolide-resistant or where treatment with azithromycin has failed	1C
	Minocycline 100 mg orally bd for 14 days	1C
	Doxycycline 100 mg bd for 7 days followed by pristinamycin 1000 mg orally three times daily for 14 days	1C
Complicated infection		
	Moxifloxacin 400 mg orally od for 14 days	1C
	Azithromycin 1 g orally stat followed by 500 mg orally od for 4 days	2A

5. WHAT IS NEW IN THE 2024 GUIDELINE?

- An updated description of the complications associated with *M. genitalium* infection is included.
- Indications for *M. genitalium* testing are now based on specific syndromes (instead of individual symptoms) and/or risk factors. There is reiteration that asymptomatic screening should not be undertaken.
- The evidence base for recommended treatments is expanded in light of case reports, clinical series and systematic reviews published since the last version of this guideline.
- Clinicians are advised to counsel patients on the risks of damage to tendons, muscles, joints and nerves, as well as significant psychiatric side effects including suicidal intent when moxifloxacin is used.
- A test of cure (TOC) is no longer recommended for all patients with confirmed *M. genitalium* infection. A TOC is only recommended in individuals who remain symptomatic after treatment and when there is suspicion of persistent infection.

6. INTRODUCTION AND METHODOLOGY

6.1. Objectives

The guideline is primarily aimed at health care professionals seeing people aged 16 years or older in departments offering specialist level 3 care in sexually transmitted infections (STIs) management within the United Kingdom. However, the principles of the recommendations can be observed across other levels of STI care providers. Non-specialist services may need to develop local referral pathways.

This guideline provides details on the pathology and clinical features of *Mycoplasma genitalium* infection, and offers recommendations on the diagnostic tests, treatment regimens and health promotion principles needed for the effective management of infection. Whilst the guideline is intended to summarise recommendations for best practice according to current available evidence, it is acknowledged that not all clinics will have ready access to *M. genitalium* detection and resistance testing because of logistical and cost issues.

6.2. Search Strategy and Methods

This guideline was produced according to specifications set out in the British Association for Sexual Health and HIV (BASHH) Clinical Effectiveness Group (CEG) 'framework for guideline development and assessment' (2015, updated 2020) accessed at https://www.bashh.org/_userfiles/pages/files/resources/2020_guidelines_framework.pdf.

This guideline has been updated by reviewing the previous BASHH national guideline for the management of infection with *M. genitalium* (2018)[1] and conducting a comprehensive literature search of publications from January 2017 to April 2024. Conference abstracts were updated when the published manuscript became available. The writing group formulated eleven 'PICO' questions (see Appendix 1) addressing the patient problem or population (P), intervention (I) (or aetiology/diagnosis/frequency/prognosis), comparison (C) and outcome(s) (O), which formed the basis for the literature search and article identification. The search was conducted using Medline, Embase, Cochrane library and National Health Service (NHS) Evidence databases and the broad search term 'Mycoplasma genitalium'. All entries in the English language were reviewed, and if relevant the full text obtained. Age, country, and study design limits were included in the PICO criteria. 'Grey literature' included conference abstracts from International Union against Sexually Transmitted Infection (IUSTI), BASHH, British

HIV Association (BHIVA), Interscience Conference of Antimicrobial Agents and Chemotherapy (ICAAC), Australasian Society for HIV, Viral Hepatitis and Sexual Health Medicine (ASHM) and European Society of Clinical Microbiology and Infectious Diseases (ECCMID) scientific meetings in the last three years.

The Grading of Recommendations, Assessment, Development, and Evaluations (GRADE) system was used to assess the evidence and make recommendations (see Appendix 2) and consensus was reached on all recommendations.

6.3. Equality Impact Assessment

An assessment of the guideline and its recommendations was undertaken to ensure the principles of equality and diversity were adhered to and is available in Appendix 3.

BASHH has adopted an anatomical approach without assuming gender in the majority of guidelines and uses gender terminology in line with BASHH 'Sexual health standards for trans, including non-binary, people'.

The terminology of 'men' and 'women' has been retained in a few instances relating to other guidelines, e.g. human papillomavirus vaccination and female genital mutilation.

6.4. Stakeholder Involvement, Piloting and Feedback

The first draft was produced by the writing group and then circulated to the BASHH Clinical effectiveness Group (CEG) for review using the the Appraisal of Guidelines, Research and Evaluation (AGREE) appraisal tool Appendix 4. The second draft of the guideline was posted on the BASHH website for wider consultation (two months) and any comments received during the consultation period were reviewed by the authors and acted on appropriately. The document was also reviewed by a patient representative, target users and the public panel of BASHH, and their feedback was considered by the authors and used to inform the guideline. The final draft was presented to the CEG for review and piloting in sexual health clinics.

Once the guideline is published, 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, if necessary, every 5 years.

7. EPIDEMIOLOGY

7.1. Prevalence in the General Population

In England, prevalence estimates of *M. genitalium* infection range from 1% to 2% in the general population, being slightly higher in women than men.[2] Amongst STI clinic attendees, prevalence ranges are higher, from 4 to 38%.[3-6]Risk Factors for Infection

Similar to *C. trachomatis*, risk factors for *M. genitalium* infection include younger age, non-white ethnicity, smoking, and increasing number of sexual partners**.**[2] However, the prevalence of *M. genitalium* infection appears to peak later than that for *C. trachomatis*, particularly in men, and to remain higher in older age groups. The use of pre-exposure prophylaxis (PrEP) has been associated with an increased risk of *M. genitalium* infection. In a recent meta-analysis, the prevalence of *M. genitalium in* individuals using PrEP was higher (16.7%) compared to non-users.[7]

7.2. Sexual Transmission

Transmission is primarily by genital–genital contact, but transmission by penile–anal contact has also been established following detection of organism in the anorectal compartment.[8-11] As carriage in the oro-pharynx is uncommon, the relative contribution of oral sex is likely to be very small.[12-14] The risk of transmission per coital act has yet to be determined but is likely to be less than that for *Chlamydia trachomatis*.[14]

7.3. Coinfection with others Sexually Transmitted Infections

As *M. genitalium* is transmitted through sexual contact co-infections with other bacterial STIs such as *C. trachomatis* and *Neisseria gonorrhoeae* are common.[15, 16]

An association between *M. genitalium* and HIV transmission and acquisition is biologically plausible and supported by some studies in Africa.[6, 17, 18]

8. CLINICAL FEATURES

8.1. Asymptomatic Infection

The evidence suggests that the majority of people infected with *M. genitalium* in the genital tract do not develop disease.[14, 19, 20] There are limited data to suggest that infection can be cleared spontaneously within a few months although persistence for up to two years is also reported.[20, 21] Current treatments are imperfect and associated with the development of antimicrobial resistance (AMR).[22, 23] There is no evidence that screening asymptomatic individuals will be of benefit, and indeed is likely to do harm at a population level.[24]

8.2. Symptomatic Infection

8.2.1. Signs and Symptoms

8.2.1.1. Penile Urethral Infection

M. genitalium infection is unequivocally and strongly associated with non-gonococcal urethritis (NGU). Typically, the prevalence of *M. genitalium* in men with NGU is 15–25% and in men with non-chlamydial nongonococcal urethritis (NCNGU) is 10–35%.[25] *M. genitalium* is also associated with persistent and recurrent urethritis, where up to 40% of affected men may have *M. genitalium* detected.[26]

The clinical presentation of *M. genitalium* urethritis is similar to other causes and thus clinical features of acute symptomatic NGU cannot be used to determine the infective aetiology.[14, 27-31]. The commonest symptoms are discharge and urethral irritation. Although the proportion of infected men that develop symptoms is unknown, this is likely to be <10%.[14]

8.2.1.2. Endocervical Infection

Several studies support an association of *M. genitalium* infection in cisgender women with post-coital bleeding and cervicitis.[32-34] Although other genital symptoms including vaginal discharge, odour, itch, dyspareunia and/or bleeding may be apparent during infection, studies have found no association with *M. genitalium* and their presence alone is not indicative of a testing need.[34]

8.2.1.3. Rectal Infection

M. genitalium is commonly found in rectal samples from GBMSM.[35, 36] While some studies show no association with symptoms[9], a recent systematic review did demonstrate an overall association of *M. genitalium* infection with proctitis.[37] There appears to be a correlation between organism load and symptoms suggesting causation.[8, 9, 38] To avoid overtreatment, and given that proctitis caused by *C. trachomatis* or *N. gonorrhoeae* mono-infection is more likely than proctitis caused by *M. genitalium*, routinely testing for *M. genitalium* in proctitis presentations is not recommended, except in specific circumstances (see Section 9).[39, 40]

8.2.1.4. Pharyngeal Infection

A low prevalence of *M. genitalium* in pharynx is consistently reported suggesting that this is not an important reservoir in the transmission of infection.[36, 37]

8.2.1.5. Ocular Infection

Ocular infection with *M. genitalium* can lead to conjunctivitis.[41] There are no reports of neonatal conjunctivitis when born to mothers with *M. genitalium* infection.

8.3. Complications

8.3.1. Pelvic Inflammatory Disease

M. genitalium is linked aetiologically to pelvic inflammatory disease (PID) and accounts for 9-13% of cases of PID.[42-44] A meta-analysis in 2015 demonstrated significant associations between the presence of *M. genitalium* and cervicitis (pooled OR 1.66) and PID (pooled OR 2.14).[33]

The organism has been shown to ascend from the lower to upper female genital tract, has been detected frequently from endometrial biopsies in individuals with PID independent of *C. trachomatis* and *N. gonorrhoeae*[45, 46] and can cause epithelial cilial damage in human fallopian tube culture. However, an association with tubal factor infertility has not yet been demonstrated and conducting studies to determine this will be difficult.[25, 47, 48]

It is estimated that 4.9% of individuals with *M. genitalium* in the female genital tract will progress to PID (compared to 14.4% of those with *C. trachomatis* infection).[44]

8.3.2. Epididymo-orchitis

A small number of studies suggest an association of *M. genitalium* infection with epididymo-orchitis.[49, 50] Due to insufficient data, routinely testing for *M. genitalium* in epididymo-orchitis presentations is not recommended, except in specific circumstances (see Section 9).

8.3.3. Prostatitis

Although *M. genitalium* has been detected in people with prostatitis and chronic pelvic pain syndrome[51, 52], current data are lacking to support a clear association with prostatitis.

8.3.4. Sero-negative Reactive Arthritis

Case reports and case series indicate a possible association between *M. genitalium* and sexually acquired reactive arthritis.[14, 25, 53, 54]

8.4. Pregnancy

A small number of studies have examined outcomes of *M. genitalium* in pregnancy. There is a possible increased risk of preterm birth (OR 1.91) but no association with spontaneous abortion.[55] There are insufficient data for premature rupture of membranes, low birth weight and perinatal death.

9. INDICATIONS FOR TESTING

9.1. Based on Syndromes

- It is recommended to test for *M. genitalium* infection in people with NGU. (**Grade 1B**)
- It is recommended to test for *M. genitalium* infection in people with signs and symptoms suggestive of PID. (**Grade 1B**)

Although *M. genitalium* may present with a range of symptoms (see Section 8.2.1), it is often non-pathological and not the causative organism. Routine testing in these situations would result in overdiagnosis and overtreatment. Therefore, it is only recommended to test for *M. genitalium* in the following syndromes if symptoms persist after other infections have been ruled out and the index of suspicion is high:

- People with signs or symptoms of mucopurulent cervicitis, particularly post-coital bleeding (**Grade 2B**);
- People with epididymo-orchitis (**Grade 2D**);
- People with sexually-acquired proctitis. (**Grade 2D**).

9.2. Based on Risk Factors

It is recommended to test for *M. genitalium* infection in current sexual partners of *M. genitalium*-infected individuals (see Section 14). (**Grade 1D**)

8.3 Asymptomatic Individuals

There are currently insufficient data to recommend routine screening for *M. genitalium* infection in asymptomatic individuals. Newer multiple pathogen assays which include the detection of *M. genitalium* are being used by some providers in STI screening of asymptomatic individuals. This is not recommended.[56] Asymptomatic individuals with confirmed *C. trachomatis* and/or *N. gonorrhoeae* infection should not be routinely tested for *M. genitalium*.

10. DIAGNOSIS

10.1. Diagnostic Tests

M. genitalium has fastidious nutritional requirements and is extremely slow growing therefore culture is not appropriate for diagnosis. Nucleic acid amplification tests (NAATs) that detect *M. genitalium*-specific DNA or RNA in clinical specimens are the only useful diagnostic method.

It is recommended testing all *M. genitalium*-positive specimens for macrolide resistance associated mutations (MRAM) using the commercial assays available in the UK. Currently, there are no commercial assays available for the detection of fluoroquinolone resistance associated mutations although these may be available in the future. The UK Health Security Agency (UKHSA) STI Reference Laboratory offers a fluoroquinolone susceptibility genotyping assay for cases of treatment failure.

10.2. Specimen Collection

10.2.1. Penile Urethra

Most studies have found that first void urine and urethral swabs have good sensitivity (>90%) for the detection of *M. genitalium*.[57-62] There are conflicting data for self-taken meatal swabs, with sensitivity estimates of 79-88%.[62, 63]

10.2.2. Female Genital Tract

Vulvovaginal swabs are the most sensitive specimen (sensitivity >98%). Self-taken specimens have comparable diagnostic accuracy to clinician-taken specimens.[62, 64] The sensitivity of endocervical swabs and urine is lower (74-81% and 58-77%, respectively).[57, 62, 65-67]

10.2.3. Non-genital Sampling

Rectal swabs are suitable for sampling and can be self-taken.

Pharyngeal *M. genitalium* is not thought to be clinically relevant and sampling is not recommended.

10.2.4. Considerations for People following Gender Reassignment Surgery

There is a paucity of data concerning *M. genitalium* infection in individuals following gender reassignment surgery. It is therefore difficult to recommend an optimal specimen type, but this should be guided by sexual history and symptoms.

10.2.5. Recommendations

- It is recommended to use first void urine as the specimen of choice in cisgender men. (**Grade 1C**)
- It is recommended to use vaginal swabs (clinician- or self-taken) as the specimen of choice in cisgender women. (**Grade 1C**)
- It is recommended, where possible, to test all *M. genitalium*-positive specimens for the presence of MRAM. (**Grade 1B**)

10.3. Window Period

There are no data on the incubation period for *M. genitalium*, or on the likely window period before a laboratory test becomes reliably positive. However, it is likely that sensitive tests will detect early infection.

11. MANAGEMENT

11.1. General Advice

Patients should be given a detailed explanation of their condition, reinforced with clear and accurate written information. A patient information leaflet for *M. genitalium* can be found on the resource page of the BASHH website.[68] This will be updated when new guidance is published or new information becomes available.

Patients should be advised to abstain from sexual intercourse until 14 days after the start of treatment, and until symptoms have resolved. Where azithromycin has been used this is especially important because of its long half-life and is likely to reduce the risk of selecting/inducing macrolide resistance if the patient is re-exposed to *M. genitalium*.

12. TREATMENT

12.1. Recommended Regimens

12.1.1. Treatment of Uncomplicated Infection (urethritis, cervicitis)

12.1.1.1. Azithromycin and Macrolide Resistance

Eradication rates of *M. genitalium* following treatment with macrolides have declined globally in recent years, and rates of genotypic resistance range from 30–100% regionally.[69] A recent systematic review and meta-analysis of 166 studies, including 22974 samples across 41 countries demonstrated a global point prevalence of genotypic macrolide resistance of 33%.[70] Data from UK surveillance studies estimate macrolide resistance in the UK to be around 62.2% with the highest proportions of resistance seen in GBMSM. Use of azithromycin 2 g over 3 days in the absence of MRAMS is associated with a high rate of treatment success (94%).[71] Although there is no direct evidence to suggest that this regimen is superior in efficacy to longer courses of azithromycin, the risk of developing macrolide resistance is likely to be low whilst offering a shorter and well tolerated course.

Access to prompt MRAM testing varies across the UK centres but is a useful tool to guide appropriate antibiotic therapy and improve treatment outcomes where available in a timely manner.

Even where an organism is known to be initially macrolide-sensitive, an azithromycin regimen should not be repeated following treatment failure because it is likely that resistance has developed on treatment.

12.1.1.2. Doxycycline

Although doxycycline as monotherapy has poor efficacy and eradication rates are low at about 30–40%, studies suggest AMR-guided therapy, with doxycycline initially followed by azithromycin or moxifloxacin**,** based on the presence or absence of MRAMs may increase cure rates after appropriate first-line therapy to over 92%.[72, 73] This is biologically plausible, as doxycycline reduces the organism load and hence the risk of pre-existing genotypic determinants of resistance being present.

12.1.1.3. Moxifloxacin and Quinolone Resistance

Moxifloxacin still has good efficacy in Europe[29, 74] although resistance is increasing in the Asia-Pacific region where its use is greater.[75] A recent systematic review and meta-analysis of 139 studies has demonstrated that global fluoroquinolone resistance rose from 10.5% (7.0-14.5%) in 2015-2017 to 17.0% (11.2-23.5%) in 2018-2020 and from 8% to 12% in non-Nordic European countries specifically.[70]

Genotypic determinants of quinolone resistance are complex and incompletely understood. Mutations more commonly arise in the *parC* gene than in the *gyrA* gene. Mutations in *parC* gene may confer reduced susceptibility to moxifloxacin, and the occurrence of mutations in both genes is a strong predictor of treatment failure.[76] Recent enhanced surveillance data of *M. genitalium* samples in the UK detected fluoroquinolone resistance in 12.1% specimens with *parC* sequencing, and MRAM/*parC* dual class mutations in 10.1% [71]

Using moxifloxacin first-line in all cases of *M. genitalium* infections is not recommended because future therapeutic options are limited. Furthermore, the 2024 update on the use of fluoroquinolones published by the Medicines and Healthcare products Regulation Agency (MHRA) has restricted the systematic use of this class of antibiotics to only situations where no alternative antibiotics are suitable.[77] As treatment options for *M. genitalium* are restricted in the presence of MRAMs, it remains appropriate to use moxifloxacin as an alternative first-line therapy, though patients require counselling on the risks of damage to tendons, muscles, joints and nerves, as well as significant psychiatric side effects including suicidal intent. The MHRA has produced patient information leaflets to provide to patients commencing quinolone therapy which are accessible via the MHRA website.

A meta-analysis reported no significant difference between moxifloxacin regimens of 7- and 10-day duration[78], and considering the MHRA guidance, a 7-day course is recommended in uncomplicated infections.

See Figure 1 a suggested treatment pathway for men presenting with NGU who subsequently test positive for *M. genitalium*.

Recommended regimens (uncomplicated infections):

- Doxycycline 100 mg twice daily (bd) for 7 days followed by azithromycin 1 g orally as a single dose then 500 mg orally od for 2 days* where the organism is known to be macrolide-sensitive or where resistance status is unknown. (**Grade 1C**).
- Doxycycline 100 mg bd for 7 days followed by moxifloxacin 400 mg orally od for 7 days if organism is known to be macrolide-resistant or where treatment with azithromycin has failed**. (**Grade 1C**)

*Given that many individuals will have had doxycycline as first-line therapy for uncomplicated infectious syndromes, a repeat course is unnecessary once the *M. genitalium* positive result is known. Azithromycin and/or moxifloxacin should be given immediately after doxycycline, and ideally within 2 weeks of completing doxycycline. If this is not possible, the course of doxycycline should be repeated prior to giving azithromycin or moxifloxacin.

**Treatment failure is defined as persistent symptoms following treatment, or a positive test in the presence of symptoms taken 5 weeks post-treatment (if indicated – see Section 13).

12.1.2. Alternative Regimens

In cases of failure or intolerance of recommended regimens, there are some observational data to support alternative regimens.

In one study, treatment with minocycline 100 mg od for 14 days was generally well-tolerated and cured approximately 67% of people who experienced treatment failure with a previous regimen.[79] The minimal inhibitory concentrations (MICs) of minocycline for reference strains of *M. genitalium* have been shown to be lower than those of doxycycline, thus greater effectiveness might be inferred (but, as with doxycycline, MICs of tetracyclines may not predict treatment outcomes).[80]

Pristinamycin is a streptogramin antibiotic. It is available on a named patient basis in England for several indications, including treatment of *M. genitalium* infection failing recommended regimens.

An observational analysis of 114 people with macrolide-resistant *M. genitalium* infection showed 75% cure when treated with pristinamycin.[81] For infections with higher pre-treatment bacterial load, treatment was more likely to fail. Hence to improve chances of organism

clearance, pre-treatment with doxycycline is advised. Patients should be warned of gastrointestinal side effects.

In cases of treatment failure with, or intolerance of first- and second-line regimens (including doxycycline, azithromycin, moxifloxacin), it is recommended to use:

- Minocycline 100 mg orally bd for 14 days. (**Grade 1C**)
- Doxycycline 100 mg bd for 7 days followed by pristinamycin 1000 mg orally three times daily for 14 days. (**Grade 1C**)

12.1.3. Treatment of Complicated Urogenital Infection (PID, Epididymo-orchitis)

There are few studies examining the efficacy of extended azithromycin and moxifloxacin regimens in the treatment of PID and epididymo-orchitis caused by *M. genitalium*. Given the need for prompt and effective treatment in complex STI syndromes, individuals with confirmed *M. genitalium* infection should be given moxifloxacin as a 14-day regimen.[78] Moxifloxacin is the currently the most efficacious agent against M. genitalium and an extended regimen has the highest chance of eradication. Individuals should be switched to moxifloxacin (if another regimen has been started) as soon as possible after Mgen is confirmed. However, if treatment for PID has been completed and symptoms have resolved by the time of the Mgen result then it is pragmatic to review symptoms rather than re-treat all with moxifloxacin.

Recommended regimens (complicated infection):

- Moxifloxacin 400 mg orally od for 14 days. (**Grade 1C**)

11.1.4 Alternative Regimens

- Azithromycin 1 g orally stat followed by 500 mg orally od for 4 days. (**Grade 2A**)

12.2. Pregnancy and Breast-/Chest-feeding

12.2.1. Pregnancy

Where possible, it is advisable to delay treatment until after pregnancy.[82] Clinicians should have an informed discussion with the pregnant person about the risks associated with treatment during pregnancy and the low risk of adverse pregnancy outcomes associated with *M. genitalium* infection. Condom use during the remainder of pregnancy is advised to reduce the risk of onward transmission of infection to sexual partners.

Treatment options in pregnancy are constrained by limited available data. There is some evidence that the use of azithromycin during pregnancy is unlikely to increase the risk of birth defects or adverse pregnancy outcomes.[83-85]. It is recommended a longer course of azithromycin to treat PID in pregnant people. This should be 1 g stat followed by 500 mg od for 4 days. (**Grade 1A**)

Although the BNF recommendation is to avoid tetracyclines at all stages of pregnancy, BASHH supports the use of doxycycline in pregnant people only when the full course of treatment can be completed prior to 15 weeks gestation.[86] (**Grade 2D**)

The use of moxifloxacin in pregnancy is contraindicated.[87] Minocycline use during pregnancy is contraindicated.[88]

Pristinamycin is considered safe in pregnancy, given its widespread use in Europe, but the writing group acknowledges that there is a lack of data supporting this.[81]

12.2.2. Breast-/Chest-feeding

The level of antibiotic detected in breast milk of those taking azithromycin is very low and the systemic exposure in infants does not exceed that observed when azithromycin is administered for treatment.[89] Therefore, the risk for the infant is considered to be low. Infants should be monitored for possible side effects on the gastrointestinal flora including diarrhoea and candidiasis. A large cohort study found an association between the maternal use of macrolides during the first 13 days after delivery and an increased risk of pyloric stenosis in breastfed infants.[90] Where possible, exposure of macrolides to neonates should be minimised and precautionary monitoring undertaken with use. Doxycycline is also excreted into breast milk and is contraindicated due to the risk of tooth discolouration and effects on bone growth.[91] Moxifloxacin is contraindicated during breast/chest-feeding.[87] Use of pristinamycin during breast/chest feeding has been associated with side effects in the baby. Due to a lack of data overall its use is not recommended..[92]

12.3. People Living with HIV Taking Antiretroviral Therapy

Treatment of *M. genitalium* in people living with HIV is the same as that for people living without HIV.

12.4. Adverse Effects

Azithromycin, doxycycline, minocycline, moxifloxacin and pristinamycin can all cause gastrointestinal problems including nausea, but symptoms are most frequently reported with doxycycline and azithromycin doses over 1 g.[93]

Caution should be taken when prescribing azithromycin or moxifloxacin to patients already on medications which may prolong the QT interval.

Minocycline has been associated with early onset toxicity reactions, hypersensitivity, autoimmune disorders, skin pigmentation and hepatitis. The risk of adverse effects increases with the duration of use and cumulative dose.

The MHRA has strengthened the recommendation on restricting the use of fluoroquinolone antibiotics following a review of their disabling and potentially long-lasting side effects.[77] Healthcare professionals should advise patients to stop treatment with a fluoroquinolone antibiotic at the first sign of side effects including tendonitis or tendon rupture, muscle pain/weakness, joint pain/swelling, peripheral neuropathy and central nervous system/psychiatric effects. Hepatotoxicity has been reported but is very rare (<1/10,000).

13. FOLLOW-UP

Persistence of *M. genitalium* has been demonstrated in the absence of symptoms in men treated for NGU.[94, 95] This occurs in about 10–20% of men treated with doxycycline but is not associated with the development of AMR.[14, 95] Persistence of *M. genitalium* following treatment with azithromycin and moxifloxacin is strongly associated with AMR.[94, 95] Choice in efficacious therapeutic agents subsequent to this is limited and achievement of microbiological cure is not always possible. Thus, a more pragmatic aim for successful treatment should be the resolution of symptoms.

If symptoms persist following treatment with a regimen deemed efficacious, the risk of re-infection should be excluded and compliance with medication should be verified. Performing a test of cure (TOC) could be considered to determine whether symptoms are specific to *M. genitalium* and thus whether further treatment is warranted. The optimal time to perform a TOC after treatment has not been determined, but data suggest that very early testing after treatment when DNA load is low can give false negative results.[96]

It is advisable that:

- A TOC is not required where there is resolution of symptoms; clinical rather than microbiological cure should be pursued in all people (**Grade 1D**);
- A TOC 5 weeks after the start of the treatment should be performed in individuals who remain symptomatic after treatment when there is suspicion of persistent infection (**Grade 1D**)

14. TRACING AND TREATMENT OF CONTACTS

Patients should be informed of the importance of partner notification and supported to do this by appropriately trained professionals.

Among heterosexual contacts, women were twice as likely as men to be infected with *M. genitalium*, after adjusting for condom use and nature of relationship.[97] Among those patients reporting sexual contact with an *M. genitalium*-infected individuals, 48.2% of women, 31.0% of MSW, and 41.7% of GBMSM were infected.[97]

Concordance rates of 39%-40% among male partners of women with *M. genitalium* and 40%-50% in female partners of infected men, with no marked differences according to study design. Concordance among GBMSM was 27% (95% CI 19% to 36%).[98]

Only current partner(s) (including non-regular partners where there is likely to be further sexual contact) should be tested and treated if positive. This is to reduce the risk of re-infection to the index patient. Partners should be given the same antibiotic as the index patient unless there is available resistance information to suggest otherwise. (**Grade 1D**)

15. AUDITABLE OUTCOME MEASURES

- All cases of *M. genitalium* infection should prompt a Sexual Health and HIV Activity Property Type (SHHAPT) code 'C16' submission to Genitourinary Medicine Clinic Activity Dataset (GUMCAD, performance standard 97%).
- Cases of microbiologically confirmed treatment failure with persistent symptoms following moxifloxacin therapy should be reported to UKHSA at: https://www.gov.uk/government/organisations/uk-health-security-agency (performance standard 97%)
- Individuals presenting with *M. genitalium* infection should be provided with written information about their diagnosis and management (performance standard 97%); e.g. patient information leaflets on *M. genitalium* from BASHH.[68]
- Partner notification should be performed according to this guideline and documented according to the BASHH statement on partner notification for STIs (performance standard 97%).[99]

16. RECOMMENDATIONS FOR FURTHER RESEARCH

Longitudinal data are needed to determine natural history and time to clearance of organism, the longer-term effects of *M. genitalium* on the genital tract and clearer associations with reproductive health consequences.

Randomised controlled trials in clinical settings examining the efficacy of new antibiotic regimens are urgently needed to increase the therapeutic options available to manage *M. genitalium*. Whilst RCTs for newer drugs have shown some promise with respect to *M. genitalium*, approval for these newer agents is not available.

17. 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 professional clinical judgement, consideration of individual patient circumstances and available resources.

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

18. REVIEW ARRANGEMENTS

An author group will be invited by the BASHH CEG to review and revise the guideline in 2030 using the BASHH framework for guideline development. However, addenda may be issued sooner than 2030, particularly if relevant new data are available relating to testing or treatment options.

19. DISCLOSURES

19.1. Acknowledgements

<Text>

19.2. Declaration of Conflicting Interests

All members of the guideline writing committee completed the BASHH conflict of interest declaration and submitted it to the CEG. No authors had any relevant conflicts of interest to declare, and the content of the guideline is not attributed to any organisation they are associated with.

19.3. Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

19.4. Editorial Independence

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19.5. Membership of the Clinical Effectiveness Group

Two members of the writing group are current members of the BASHH CEG. Current membership of the BASHH CEG is available at https://www.bashh.org/professionals/bashh_groups/39/clinical_effectiveness_group/public

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20. FIGURES

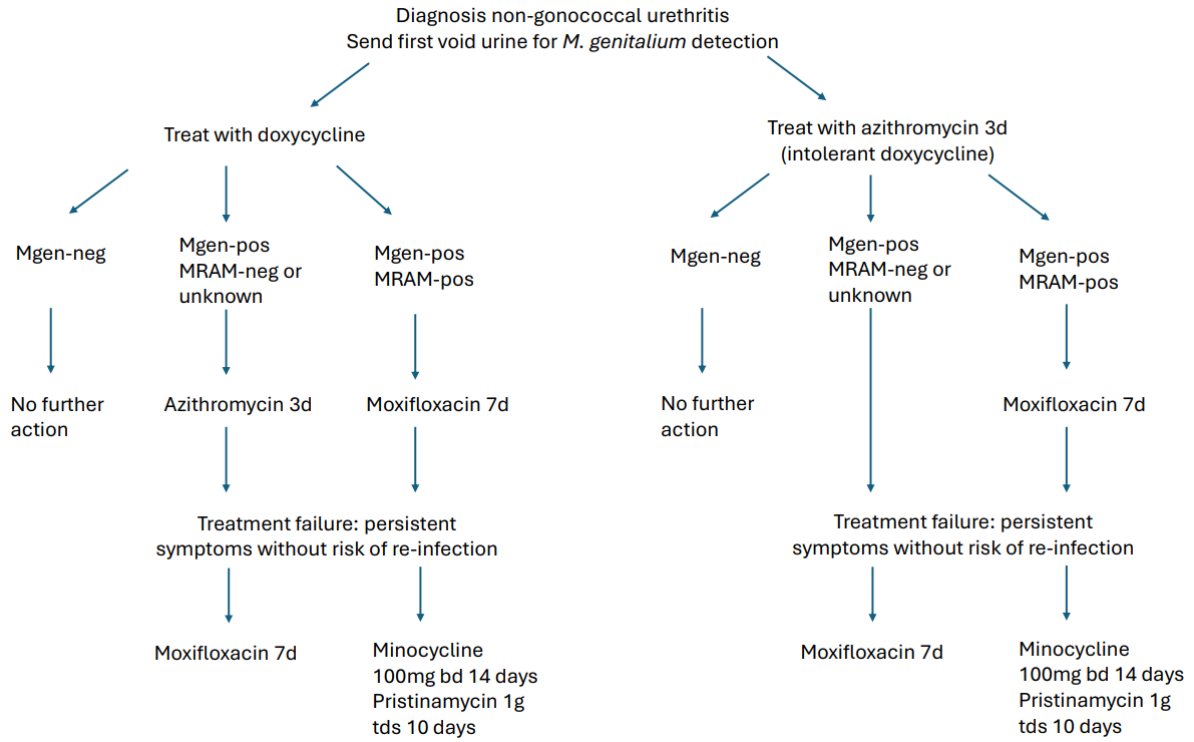

Figure 1 Suggested treatment pathway for men presenting with non-gonococcal urethritis who subsequently test positive for *Mycoplasma genitalium*. Azithromycin 3d should be started within 2 weeks of finishing doxycycline.

Azithromycin 3d: azithromycin 1 g, then 500 mg od for 2 days; bd: twice daily; d: days; Doxycycline: doxycycline 100 mg bd for 7 days; Mgen: *Mycoplasma genitalium*; Moxifloxacin 7d: moxifloxacin 400 mg bd for 7 days; MRAM: macrolide resistance associated mutation; neg: negative; pos: positive; tds: three times a day.

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APPENDIX 1: LIST OF PICO QUESTIONS

PICO QUESTION 1. What is the prevalence of asymptomatic *M. genitalium* in the following populations?

- Heterosexual men;
- Heterosexual women;
- MSM: HIV-negative;
- MSM: HIV-positive;
- Pregnant women;
- Transgender people;
- Non-conforming people.

- **Outcome:** Prevalence related to anatomical distribution, prevalence of risk factors, *C. trachomatis* co-infection and *N. gonorrhoeae* co-infection.

PICO QUESTION 2. What is the prevalence of symptomatic *M. genitalium* in the following clinical presentations?

- NGU/non-specific urethritis (first presentation);
- NGU/non-specific urethritis (persistent and recurrent episodes);
- Muco-purulent cervicitis/intermenstrual bleeding/post-coital bleeding;
- PID/salpingitis;
- Proctitis;
- Vaginal discharge;
- Pharyngitis;
- Prostatitis;
- Conjunctivitis;
- Reactive arthritis.

- **Outcome:** Prevalence, odds ratio, *C. trachomatis* co-infection and *N. gonorrhoeae* co-infection

PICO QUESTION 3. What are the clinical features of *M. genitalium* infection?

- **Outcome:** Evidence for testing *M. genitalium* infection in the populations and clinical scenarios examined above.

PICO QUESTION 4. What are the adverse outcomes associated with *M. genitalium* in pregnancy?

- **Outcome:** Adverse outcomes.

PICO QUESTION 5. What are the optimal specimen types for testing for *M. genitalium* in men and women?

PICO QUESTION 6. What is the incubation/window period for *M. genitalium* detection?

PICO QUESTION 7. What are the country specific data for the prevalence of macrolide- and quinolone-associated resistance mutations?

- **Population**:
    - Heterosexual men;
    - Heterosexual women;
    - Gay and bisexual MSM;
- **Outcome:** macrolide- and quinolone-associated resistance mutations by group

PICO QUESTION 8. What is the correlation of the presence of resistance mutations with treatment failure/clinical cure/microbiological cure?

- **Outcome:** treatment failure/clinical cure/microbiological cure and associated symptoms by type of mutations (macrolide- or quinolone-resistant).

PICO QUESTION 9. What are the rates of microbiological cure/clearance rate/clinical cure/treatment failure for each of the following antimicrobial regimens?

- Azithromycin (all regimens);
- Moxifloxacin;
- Doxycycline;

- Minocycline;
- Pristinamycin;
- Lefamulin;
- Gepotidacin;
- Two-drug regimen (sequential);
- Two-drug regimen (concurrent).

PICO QUESTION 10. Is a test of cure required, and if so, what is the optimal time to conduct a test-of-cure following treatment?

PICO QUESTION 11. Does notification of partners of patients with *M. genitalium* infection independently influence outcomes/relapse/re-infection in treated index patients?

- **Outcome:** successful outcome (decrease of relapse/re-infection of index patient).

APPENDIX 2: GRADE SYSTEM FOR ASSESSING EVIDENCE

Introduction:

There has been a general move to using the GRADE system by many guideline producing bodies in recent years and the BMJ published a series of papers about the method in 2008 [1,2,3,4,5,6].

The GRADE system applied in its purest form requires scientific analyses of evidence to produce "tables" from a series of "PICO" questions: Questions that identify the patient problem or population (P), intervention (I) (or aetiology/diagnosis/frequency/prognosis), comparison (C) and outcome(s) (O). Practically this is very labour intensive and requires someone very experienced in this area, and many large guideline writing bodies employ a scientist to do this for them. However, some bodies adapt the GRADE system according to their own needs, assess the evidence in the way they have done in the past, and then make strengths of recommendations according to the GRADE system, which when applied in this way is quite simple to do and understand. BASHH have adopted GRADE to use in this manner.

The principles of GRADE:

1. Assessment of the evidence

GRADE offers four levels of evidence quality: high, moderate, low, and very low, with randomised trials classed as high-quality evidence and observational studies as low-quality evidence. Quality may be downgraded because of limitations in study design or implementation, imprecision of estimates (wide confidence intervals), variability in results, indirectness of evidence, or publication bias. Quality may be upgraded because of a very large

[1] Guyatt GH, Oxman AD, Vist G, et al; GRADE Working Group. BMJ 2008; 336:924-926.

[2] Guyatt GH, Oxman AD, Kunz R, et al; GRADE Working Group. BMJ 2008; 336(7651):995-8.

[3] Schünemann HJ, Oxman AD, Brozek J, et al; GRADE Working Group. BMJ 2008; 336(7653):1106-10.

[4] Guyatt GH, Oxman AD, Kunz R, et al; GRADE Working Group. BMJ 2008; 336(7654):1170-3.

[5] Guyatt GH, Oxman AD, Kunz R, et al; GRADE Working Group. BMJ 2008; 336(7652):1049-51.

[6] Jaeschke R, Guyatt GH, Dellinger P, et al; GRADE working group. BMJ 2008; 337:a744.

magnitude of effect, a dose-response gradient, and if all plausible biases would reduce an apparent treatment effect.

Summary of factors affecting quality of evidence:

Study limitations	Imprecision	Large magnitude of effect
Inconsistency of results	Publication bias	Dose-response gradient
Indirectness of evidence	Factors that might increase quality of evidence	Plausible confounding, which would reduce a demonstrated effect

Based on the analysis of the evidence with these factors borne in mind the evidence should be graded as follows:

A	A body of evidence of high-quality meta-analyses, systematic reviews of and RCTs directly applicable to the target population
B	As above but relating to high quality case control or cohort studies with low risk of bias or confounding and high probability that a relationship is causal
C	As B but trials may have some flaws
D	Non-analytic evidence (e.g., case reports or series or expert opinion)

However, when reviewing evidence graded A-D as above the grading can be altered follows:

- The strength of recommendation should be higher if the following apply:
    - A large effect of an intervention is demonstrated.
    - Dose response/evidence of gradient.
    - All plausible confounding would reduce a demonstrated effect or would suggest a spurious effect when results show no effect.
- Lower if there is evidence of:
    - Serious/very serious study limitations
    - Inconsistency
    - Indirectness
    - Imprecision

- Publication bias
- Study limitations
- Inconsistency of results
- Indirectness of evidence
- Imprecision
- Publication bias

2. Formulating recommendations

There are only two strengths of recommendation, which may be either for or against an intervention: 1 = strong or 2 = weak. Pragmatically, this means the following:

- Strong recommendation for intervention:

For patients — Most people in this situation would want the recommended course of action and only a small proportion would not.

For clinicians — Most people should receive the intervention.

For quality monitors — Adherence to this recommendation could be used as a quality criterion or performance indicator. If clinicians choose not to follow such a recommendation, they should document their rationale.

- Weak recommendation for intervention:

For patients — Most people in this situation would want the suggested course of action, but many would not.

For clinicians — Examine the evidence or a summary of the evidence yourself and be prepared to discuss that evidence with patients, as well as their values and preferences.

For quality monitors — Clinicians' discussion or consideration of the pros and cons of the intervention, and their documentation of the discussion, could be used as a quality criterion.

- No specific recommendation:
  - The advantages and disadvantages are equivalent.
  - The target population has not been identified.

- Insufficient evidence on which to formulate a recommendation.

3. Consideration of using PICO

This may be helpful if guideline writing committee wish to utilise this method, this is explained in the NICE guideline manual; chapter 4:6.

Patients/population	Which patients or population of patients are we interested in? How can they be best described? Are there subgroups that need to be considered?
Intervention	Which intervention, treatment or approach should be used?
Comparison	What is/are the main alternative/s to compare with the intervention?
Outcome	What is really important for the patient? Which outcomes should be considered, such as intermediate or short-term measures; mortality; morbidity and treatment complications; rates of relapse; late morbidity and readmission; return to work, physical and social functioning? Should other measures such as quality of life, general health status and costs be considered?

4. Consideration of costs

These may or may not legitimately be included in the GRADE system, but it would be sensible in the current climate to always consider these, and if they are not considered this should be stated and why – for example, there is no significant difference in cost between the recommended treatments.

Generally speaking, GRADE suggests a balance sheet should inform judgments about whether the net benefits are worth the incremental costs. Evidence profiles should always present resource use, not just monetary values.

5. Using the GRADE grid to resolve differences:

This supports the Delphi technique we already adopt, i.e., to develop a consensus within the group.

6. GRADE training for BASHH guideline authors

Authors need to be familiar and confident in using the GRADE system, and training for this is available as follows:

- The papers from the BMJ series in 2008, as listed in the introduction to this appendix. The articles can be accessed through the grade working group web site at: http://www.gradeworkinggroup.org/publications/index.htm
- McMaster GRADE online modules: these have been recommended by the GRADE working group and take about 20 minutes each to complete. The web address is: http://cebgrade.mcmaster.ca/
- Journal of Clinical Epidemiology 2011: published a 20-part series that is available through the GRADE working group website (link above).

Summary:

BASHH have now moved to the GRADE system for evaluating evidence and making recommendations by asking guideline authors and reviewers to apply the principles outlined in sections 1-3 above. Authors should consider structuring their analysis of evidence into PICO questions addressing Population / Intervention / Comparison / Outcome as stated in section 4. Costs should be included in the evaluation and formulation of recommendations as stated in section 5. When resolution of conflicting opinions is required, the GRADE grid should be used. This appendix is a brief summary of the GRADE system how it is to be adopted by BASHH guideline authors.

APPENDIX 3: EQUALITY IMPACT ASSESSMENT TABLE

BASHH Guideline Equality Impact Assessment *(based on NICE documentation shared with BASHH August 2019)*				
Guidance title: BASHH Guidelines for the Management		**Completed by: Suneeta Soni**		**Date: 26 October 2024**
How relevant is the topic to equality?	**Inequalities in health impact of the condition or public health issue**	**Potential of guidance to add value**	**Priority for NHS or other government department**	**Topic relevance; conclusions and outcomes**
	• Prevalence and impact of condition or public health problem; • Prevalence of risk factors.	• Inequalities in access, uptake or impact; • Timeliness; • Equality issues identified by proposers of the topic; • Equality issues identified by patient or lay organisations.	• Department of Health or other centralised NHS bodies such as NHS England; • Local authorities; • Home Office; • Other agencies.	• If equality issues had impact on the guidance summarise these impacts.
Sex/gender	*M. genitalium* affects all individuals regardless of gender.	The guideline highlights that despite consequences in female reproductive tract morbidity, a screening programme as currently exists in the UK for *C. trachomatis*/*N. gonorrhoeae* is not warranted given the lack of clear association with infertility and also the issues around overtreatment leading to further AMR.	NA	NA

BASHH Guideline Equality Impact Assessment *(based on NICE documentation shared with BASHH August 2019)*				
Guidance title: BASHH Guidelines for the Management		**Completed by: Suneeta Soni**		**Date: 26 October 2024**
Race	From population-based samples, *M. genitalium* and the presence of macrolide-associated resistance mutations have been found to be more prevalent among people of black ethnicity	NA	UKHSA undertakes sentinel surveillance annually or biannually to ensure that resistance rates are tracked. The need for ongoing surveillance of resistance is highlighted in the UK government's 5-year action Plan for AMR.	The guideline does not stipulate different treatment pathways despite the higher rates of resistance seen in this group of individuals.
Disability	*M. genitalium* affects all people although there are no specific data that determine the prevalence in those living with disability	There are potential issues regarding access to care for those with physical disability given that the guideline has stressed that where possible, testing and management e.g. *M. genitalium* should be managed in specialist settings ie. level 3 services.	Increased funding for sexual health services to be able to deliver outreach care where needed, is essential.	The guideline itself is not impacted directly by this issue.
Age	*M. genitalium* affects individuals of all ages and the distribution across ages groups is relatively even	NA	NA	NA
Sexual orientation	Rectal prevalence of *M. genitalium* is high. Pharyngeal infection is not implicated in the onward	The guideline highlights prevalence of infection in PrEP users who are GBMSM and	UKHSA should continue its sentinel surveillance program annually or biannually to ensure that	The guideline does not stipulate different treatment pathways despite the higher rates of

BASHH Guideline Equality Impact Assessment *(based on NICE documentation shared with BASHH August 2019)*				
Guidance title: BASHH Guidelines for the Management		**Completed by: Suneeta Soni**		**Date: 26 October 2024**
	transmission of infection. The presence of macrolide-associated resistance mutations has been found to be more prevalent among people of black ethnicity.	variation by anatomical site in these individuals.	resistance rates are tracked. The need for ongoing surveillance of resistance is highlighted in the government's 5-year action Plan for AMR.	resistance seen in this group of individuals
Gender reassignment	There is a paucity of data for *M. genitalium* in people following gender reassignment. The reproductive harms of untreated *M. genitalium* can affect transgender men, non-binary (assigned female at birth) and other people who have not had a hysterectomy or bilateral oophorectomy.	NA	NA	NA
Religion/belief	Surveillance data does not tell us about any association between *M. genitalium* and religion/ belief.	NA	NA	NA
Pregnancy & maternity	Data are still unclear around maternity and neonatal outcomes in *M. genitalium.*	The guideline addresses issues of diagnosis in pregnancy and the difficulty of treatment	NA	NA

Title: BASHH guideline for the management of infection with *Mycoplasma genitalium*	
Version No.: 3.0	**Date:** 21 November 2024

BASHH Guideline Equality Impact Assessment *(based on NICE documentation shared with BASHH August 2019)*				
Guidance title: BASHH Guidelines for the Management		**Completed by: Suneeta Soni**		**Date: 26 October 2024**
	The use of most antimicrobial treatments for this infection is contraindicated	success given the limited antibiotics available to treat *M. genitalium* in pregnancy		
Other definable characteristics & socioeconomic factors that may be affected by protected characteristics, including: • Prisoners and young offenders; • Refugees and asylum seekers; • Migrant workers; • Looked after children; • Homeless people; • Deprivation; • Disadvantage associated with geographical distinctions.	There is geographical variation in access to testing and treatment for STIs, including *M. genitalium*. Surveillance data does not offer sufficient granularity to comment on how other inclusion populations may be more affected by *M. genitalium*.	The guidelines are primarily for those working in level 3 specialist sexual health services and safeguarding concerns should be addressed by departmental policies. Genitourinary physicians receive level 3 safeguarding training.	Safeguarding concerns should be addressed.	Consideration of patients in these groups being at risk of sexual exploitation/abuse should be made as part of Genitourinary Medicine department's safeguarding training.

AMR: antimicrobial resistance; BASHH: British Association for Sexual Health and HIV; GBMSM: gay, bisexual and other men who have sex with men; NA: not applicable; PrEP: pre-exposure prophylaxis; STIs: sexually transmitted infections; UKHSA: UK Health Security Agency.

APPENDIX 4: AGREE II USER MANUAL

The AGREE II consists of 23 key items organized within 6 domains followed by 2 global rating items ("Overall Assessment"). Each domain captures a unique dimension of guideline quality [7].

DOMAIN 1. SCOPE AND PURPOSE

1. The overall objective(s) of the guideline is (are) specifically described.

2. The health question(s) covered by the guideline is (are) specifically described.

3. The population (patients, public, etc.) to whom the guideline is meant to apply is specifically described.

DOMAIN 2. STAKEHOLDER INVOLVEMENT

4. The guideline development group includes individuals from all relevant professional groups.

5. The views and preferences of the target population (patients, public, etc.) have been sought.

6. The target users of the guideline are clearly defined.

DOMAIN 3. RIGOUR OF DEVELOPMENT

7. Systematic methods were used to search for evidence.

8. The criteria for selecting the evidence are clearly described.

9. The strengths and limitations of the body of evidence are clearly described.

10. The methods for formulating the recommendations are clearly described.

11. The health benefits, side effects, and risks have been considered in formulating the recommendations.

12. There is an explicit link between the recommendations and the supporting evidence.

13. The guideline has been externally reviewed by experts prior to its publication.

[7] Appraisal of Guidelines for Research & Evaluation (AGREE) II User Manual, update from December 2017. Access: https://www.agreetrust.org/wp-content/uploads/2017/12/AGREE-II-Users-Manual-and-23-item-Instrument-2009-Update-2017.pdf

14. A procedure for updating the guideline is provided.

DOMAIN 4. CLARITY OF PRESENTATION

15. The recommendations are specific and unambiguous.

16. The different options for management of the condition or health issue are clearly presented.

17. Key recommendations are easily identifiable.

DOMAIN 5. APPLICABILITY

18. The guideline describes facilitators and barriers to its application.

19. The guideline provides advice and/or tools on how the recommendations can be put into practice.

20. The potential resource implications of applying the recommendations have been considered.

21. The guideline presents monitoring and/or auditing criteria.

DOMAIN 6. EDITORIAL INDEPENDENCE

22. The views of the funding body have not influenced the content of the guideline.

23. Competing interests of guideline development group members have been recorded and addressed.

APPENDIX 5: PILOT FEEDBACK FORM

Guideline	
Dates for the period of guideline piloting	
Name	
Affiliation	
Date	
Good points about the guideline	
Points for improvement	
Any other general comments	