PART 1

Introduction and summary tables

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The Bacterial Special Interest Group (BSIG) of the British Association for Sexual Health and HIV (BASHH) was commissioned by the Clinical Effectiveness Group (CEG) to write screening and testing guidelines for use in UK genitourinary medicine (GUM) clinics. The aims of these guidelines are to:

- provide advice on what tests for sexually transmitted diseases are most appropriate in a UK GUM clinic setting (excluding HIV infected patients)
- provide a basis for audit
- support clinics when bidding for additional resources to meet national standards.

Although designed for use by GUM clinics the recommendations may also provide information and guidance for other healthcare settings wishing to optimise the diagnosis of sexually transmitted infections (STI).

In compiling the guideline advice has been taken from a variety of different experts in the United Kingdom. The grade of evidence for each recommendation is given and it is evident that in many cases there is a lack of clinical trial data, which has led to the use of appropriate expert opinion. There is therefore a clear need for future research programmes to assess the efficacy of different approaches for STI screening and testing.

The levels of evidence and recommendations have been graded as shown below.

LEVELS OF EVIDENCE

- Ia, evidence obtained from meta-analysis of randomised controlled trials
- Ib, evidence obtained from at least one randomised controlled trial
- IIa, evidence obtained from at least one well designed controlled study without randomisation
- IIb, evidence obtained from at least one other type of well designed quasi-experimental study
- III, evidence obtained from well designed non-experimental descriptive studies
- IV, evidence obtained from expert committee reports or opinions and/or clinical experience of respected authorities.

GRADING OF RECOMMENDATION

- A, evidence at level Ia or Ib
- B, evidence at level IIa, IIb, or III
- C, evidence at level IV.

STRUCTURE

The structure of the guideline is as follows:

- **Summary tables**—that make recommendations for the testing of individual STI with regard to the site that should be tested and the most appropriate test that should be used, both in asymptomatic and symptomatic men and women presenting to a UK GUM clinic.
- **Testing guidelines for individual STI**—for each individual infection more detailed information is provided regarding the recommended tests, recommended site for testing, factors that might alter the tests or sites recommended (sexual history, risk group, etc), frequency of repeat testing in asymptomatic patients, and recommendation for test of cure.

The guidelines have been developed following the methodological framework of the Appraisal of Guidelines Research and Evaluation instrument (AGREE—adapted as described in *International Journal of STD and AIDS*[1 2]). The key features are as follows:

- **Scope and purpose:** the overall aim of the guidelines, target population, and target users are as described above.
- **Stakeholder involvement:** the extent to which the guideline represents the views of intended users has been addressed primarily by the authorship coming from the multidisciplinary membership of the BSIG. As practising clinicians the authors were able to draw on their experience of applying the tests to symptomatic and asymptomatic patients but it was not feasible to obtain formal input from representative patients.
- **Rigour of development:** for each guideline the strategy used to search for evidence is outlined. The process used to formulate the recommendations varies with the authorship, which is listed in each case. After drafting, other health care professionals and professional bodies in GUM were asked to comment, the draft guidelines posted on the BASHH website for 3 months, and all comments reviewed before final publication.
- **Presentation:** a standard format was set by the BSIG editors and has been followed throughout.
- **Applicability:** the authors were asked to comment on the organisational and the cost implications of applying each guideline and have identified issues that may be problematic for routine GU medicine departments and laboratories. The cost of specific tests are not included as these vary according to individual contracts. Each guideline suggests standards for audit.
- **Editorial independence:** each of the guidelines has a statement about potential conflicts of interest.

As with previous guidelines it is intended that the recommendations will be updated as new evidence becomes available. Those wishing to contribute to this process should contact either Jonathan Ross (jonathan.ross@hobtpct.nhs.uk) or Cathy Ison (catherine.ison@hpa.org.uk).

Abbreviations: AGREE, Appraisal of Guidelines Research and Evaluation instrument; BASHH, British Association for Sexual Health and HIV; BSIG, Bacterial Special Interest Group; CEG, Clinical Effectiveness Group; EIA, enzyme immunoassay; ESR, erythrocyte sedimentation rate; GUM, genitourinary medicine; MSM, men who have sex with men; NSU, non-specific urethritis; PID, pelvic inflammatory disease; STI, sexually transmitted infections; TPHA, *Treponema pallidum* haemagglutination assay; TPPA, *Treponema pallidum* particle assay

SUMMARY TABLES

Tables 1–6 summarise the guidance on screening and testing for STIs in patients attending GUM clinics in the United Kingdom. These provide an overview of the most appropriate investigations to use to detect STIs but further details and clarification are provided in the subsequent sections covering individual infections.

Recommended tests for asymptomatic patients

Screening tests in asymptomatic heterosexual men or women (tables 1 and 2) are not recommended for the following infections except where indicated in ''Testing guidelines for individual sexually transmitted infections'', p iv6:

- candida
- trichomoniasis
- bacterial vaginosis
- chancroid
- donovanosis
- hepatitis A, B, and C
- herpes simplex
- lymphogranuloma venereum
- genital warts (visual inspection only).

The site of testing may vary according to sexual history (see ''Testing guidelines for individual sexually transmitted infections'' for specific details, p iv6).

Screening tests in asymptomatic MSM (table 3) are not recommended for the following infections except where indicated in ''Testing guidelines for individual sexually transmitted infections'', p iv6:

- candida
- trichomoniasis
- bacterial vaginosis
- chancroid
- donovanosis
- hepatitis A and C
- herpes simplex
- lymphogranuloma venereum
- genital warts (visual inspection only)

Table 1 Test(s) of choice in asymptomatic heterosexual men

Site or specimen	Gonorrhoea	Chlamydia	Non-specific urethritis	Syphilis	HIV
Urethra	Culture	NAAT	NR	NR	NR
Rectum	NR	NR	NR	NR	NR
Oropharynx	NR	NR	NR	NR	NR
Urine	NAAT*	NAAT	NR	NR	NR
Blood	NR	NR	NR	EIA or TPPA or cardiolipin test plus TPHA	EIA

*If urethral specimen not available.
NR, not recommended; NAAT, nucleic acid amplification test, EIA, enzyme immunoassay; TPPA, *Treponema pallidum* particle assay; TPHA, *Treponema pallidum* haemagglutination assay.

Table 2 Test(s) of choice in asymptomatic women

Site or specimen	Gonorrhoea	Chlamydia	Syphilis	HIV
Urethra	NR	NR	NR	NR
Cervix	Culture	NAAT	NR	NR
Vagina	NR		NR	NR
Self taken tampons or swabs		NAAT		
Vulval-introital		NAAT		
Posterior fornix		NAAT		
Rectum	NR	NR	NR	NR
Oropharynx	NR	NR	NR	NR
Urine	NR	NAAT*	NR	NR
Blood	NR	NR	EIA or TPPA or cardiolipin test plus TPHA	EIA

*If urethral specimen not available.
NR, not recommended; NAAT, nucleic acid amplification test; EIA, enzyme immunoassay; TPPA, *Treponema pallidum* particle assay; TPHA, *Treponema pallidum* haemagglutination assay.

Table 3 Test(s) of choice in asymptomatic men who have sex with men (MSM)

Site or specimen	Gonorrhoea	Chlamydia	Non-specific urethritis	Syphilis	Hepatitis B	HIV
Urethra	Culture	NAAT	NR	NR	NR	NR
Rectum*	Culture†	NAAT (in some situations‡)	NR	NR	NR	NR
Oropharynx*	Culture†	NR	NR	NR	NR	NR
Urine	NAAT (if urethral specimen not available)	NAAT	NR	NR	NR	NR
Blood	NR	NR	NR	EIA or TPPA or cardiolipin test plus TPHA	EIA for HBsAg and anti-HBcAb and anti-HBsAb	EIA

NR, not recommended; NAAT, nucleic acid amplification test; EIA, enzyme immunoassay; TPPA, *Treponema pallidum* particle assay; TPHA, *Treponema pallidum* haemagglutination assay.
*Samples only appropriate if indicated by sexual history.
†If samples are taken from this site then culture should be used but NAAT may be considered if culture is not available.
‡NAATs are increasingly being used but remain unlicensed. Screening using NAATs should be offered in men who are contacts of lymphogranuloma venereum and guidance for more widespread rectal screening for chlamydia in MSM is still under review.

Recommended tests for patients presenting with genital discharge (tables 4 and 5)

Table 4 Test(s) of choice for genital discharge in heterosexual men and MSM

Site or specimen	Gonorrhoea	Chlamydia	NSU	Candida	Trichomonas
Urethra	Microscopy plus culture	NAAT	Microscopy	NR	Culture†
Rectum*	Culture	Tissue culture‡	NR	NR	NR
Oropharynx*	Culture	Tissue culture‡	NR	NR	NR
Urine	NAAT¶	NAAT	NR	NR	Culture†

NSU, non-specific urethritis; NR, not recommended NAAT: nucleic acid amplification test
*Samples only appropriate if indicated by sexual history or local symptoms/signs.
†Only if symptoms/signs persist after excluding or treating gonorrhoea, chlamydia and *Mycoplasma genitalium* infection.
‡NAAT can be considered if culture not available.
¶If urethral specimen not available.

Table 5 Test(s) of choice for genital discharge in women

Site or specimen	Gonorrhoea	Chlamydia	Candida	Trichomonas	Bacterial vaginosis
Urethra	Microscopy plus culture	NR	NR	NR	NR
Cervix	Microscopy plus culture	NAAT	NR	NR	NR
Vagina			Microscopy Culture		
Self taken tampons or swabs	NAAT (not validated)	NAAT (not validated)			
Vulval-introital	NAAT (not validated)	NAAT (not |validated)			
Wall smear					
Posterior fornix				Culture or latex agglutination plus or minus microscopy†	Microscopy
Rectum*	Culture	Tissue culture	NR	NR	NR
Oropharynx*	Culture	Tissue culture	NR	NR	NR
Urine	NR	NAAT (if cervical/vaginal specimen not available)	NR	NR	NR

NR, not recommended, NAAT, nucleic acid amplification test.
*Samples only appropriate if indicated by sexual history or local symptoms/signs.
†Microscopy provides an immediate diagnosis, but culture is more sensitive.

Recommended tests for patients presenting with genital ulceration (table 6)

Table 6 Test(s) of choice for genital ulceration in men or women

Site or specimen	Syphilis	Herpes	Chancroid*	Donovanosis*	LGV*
Ulcer	Microscopy (dark ground) or NAAT (if available)	NAAT (culture only if NAAT unavailable)	Culture or NAAT (if available)	Microscopy	Microscopy (immunofluorescence with an anti-*C trachomatis* conjugate) Culture NAAT (not validated)
Biopsy	NR	NR	NR	Microscopy	Microscopy Culture NAAT (not validated)
Lymph nodes, aspirate or pus	Microscopy (dark ground)	NR	Culture or NAAT (if available)	Microscopy	Microscopy Culture NAAT (not validated)
Other sites		NR	NR	NR	
Oral fluid	NAAT (if available)				
Skin lesions	NAAT (if available)				
Condylomata	NAAT (if available)				
Rectum	NAAT (if available)				Microscopy Culture NAAT (not validated)‡
Blood	EIA (IgM and IgG) and TPPA and cardiolipin test	HSV IgG by type specific EIA, immunoblot, or western blot†	NR	NR	Complement fixation Whole inclusion fluorescence Micro-immunofluorescence

LGV, lymphogranuloma venereum; NR, not recommended; NAAT, nucleic acid amplification test.
*Samples only appropriate if indicated by sexual history or local symptoms/signs.
†In selected cases if virus detection is negative. Repeat serology required to demonstrate IgG seroconversion.
‡NAAT not validated, but may use as part of HPA algorithm (see text).

ADDITIONAL NOTES

Non-specific urethritis

Non-specific urethritis (NSU)[3] is diagnosed on the basis of identifying five or more polymorphs per high power field (×1000) on a Gram stained urethral smear, averaged over five fields containing the greatest concentration of polymorphs. Alternatively, or additionally, the diagnosis can be made from a first pass urine specimen by identifying 10 or more polymorphs per high power field.

The specimen may be collected using a 5 mm plastic loop or cotton tipped swab. The sensitivity of the tests is affected by the time since last passing urine. The optimum time for testing is not known but 4 hours is conventional. Symptomatic patients who have a negative urethral smear test should be retested after holding their urine overnight.

The Clinical Effectiveness Group of BASHH recommends that a Gram stained urethral smear should not routinely be performed in male patients who do not have symptoms of urethral discharge or dysuria on questioning by a healthcare worker.

In some men with NSU *Mycoplasma genitalium* is probably an important pathogen but commercial test kits are not currently available for its detection.

Pelvic inflammatory disease

- Pelvic inflammatory disease (PID)[4] may be symptomatic or asymptomatic. Even when present, clinical symptoms and signs lack sensitivity and specificity (the positive predictive value of a clinical diagnosis is 65-90% compared with laparoscopic diagnosis).[4]
- Testing for gonorrhoea and chlamydia in the lower genital tract is recommended since a positive result supports the diagnosis of PID. The absence of infection at this site does not exclude PID however.
- An elevated erythrocyte sedimentation rate (ESR) or C reactive protein also supports the diagnosis.
- Laparoscopy may strongly support a diagnosis of PID but is not justified routinely on the basis of cost, the potential difficulty in identifying mild intratubal inflammation or endometritis, and high rates of intraobserver and inter-observer variation in diagnosing PID.
- Endometrial biopsy and ultrasound scanning may also be helpful when there is diagnostic difficulty but there is insufficient evidence to support their routine use at present. The presence of histological endometritis is not necessarily associated with higher rates of infertility, chronic pelvic pain, or recurrent PID.
- The absence of endocervical or vaginal pus cells has a good negative predictive value (95%) for a diagnosis of PID but their presence is non-specific (poor positive predictive value—17%).

Because of the serious long term sequelae of PID and the low risk associated with antibiotic use, a low threshold for making a clinical diagnosis of PID is appropriate—that is, any sexually active woman with lower abdominal pain plus either adnexal tenderness or cervical motion tenderness.

Window period

The minimum time gap between exposure to an STI and its successful detection will vary depending on a number of factors, including:

- the organism
- the size of inoculum
- the type of test utilised.

The evidence base for specific recommendations on how long to wait before testing for different STIs is limited. In general:

- for serological testing (for example, HIV, syphilis, hepatitis), an interval of 3–6 months is required with the interval reflecting the timing of potential exposure to infection (evidence level IIb)
- for bacterial STIs, many clinicians would wait 3–7 days before testing (evidence level IV)

Recent antibiotic use

Patients taking antibiotics to which the organism being tested is likely to be sensitive, should have testing deferred. The optimal time for testing in this situation is not known but will depend on:

- the possibility of re-exposure to infection
- the half life of the antibiotic
- the sensitivity of the organism to the antibiotic.

In general, testing may be considered 3–7 days after completing the antibiotic course (evidence level IV).

Repeat screening

The recommended interval between repeat screening in asymptomatic patients will depend on the sexual history including:

- frequency of sexual contact
- number and concurrency of sexual partners
- use of barrier contraception
- history of previous STIs
- the prevalence of the specific infection in the community.

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