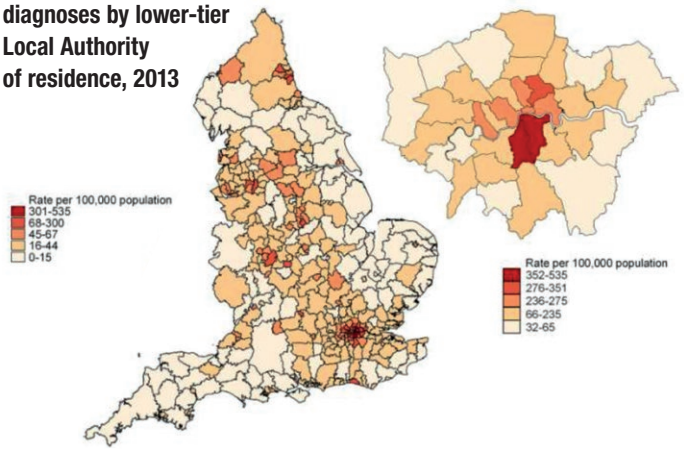
TDL Sexual Health 2015

Overall trends in diagnoses in England

There is considerable geographic variation in the distribution of STI's – for example in 2013 the rates of gonorrhoea ranged from 0 (Isles of Scilly) to 533 (Lambeth) per 100,000 population. Rates are highest in residents of urban areas, especially in London. Ethnicity is also considered a factor as the complex interplay of cultural, economic and behavioural factors are taken into account.

PHE Infection Report Vol 8 No. 24–17 June 2014

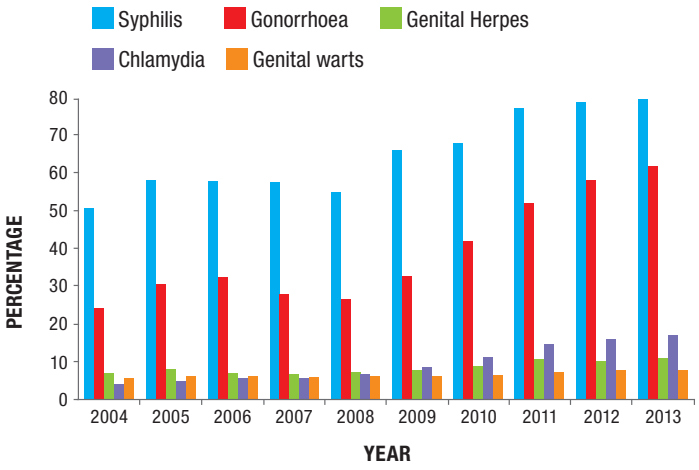
Rates of gonorrhoea diagnoses by lower-tier Local Authority of residence, 2013



STI Update (PHE Infection Report Vol 8 No. 24–17 June 2014)

- There were approximately 450,000 STI diagnoses in England
- Genital chlamydial infection remains the most commonly diagnosed STI, accounting for almost 50% of diagnoses
- New diagnoses of gonorrhoea rose by about 15%
- Increase in testing of rectal and pharyngeal sites in Men who have Sex with Men (MSM)
- New diagnoses of infectious syphilis rose by 9%
- High levels of unsafe and unprotected sex with increased diagnoses in STI's in MSM. These account for the majority of increased diagnoses seen among all men.

Proportion of Men Who Have Sex With Men (MSM) among all male STI diagnoses, GUM clinics, 2004–2013, England



Men who have sex with men (MSM) in the UK are at a much greater increased risk of acquiring STI's compared to the heterosexual population. They continue to experience high rates of STI's and remain a priority for targeted HIV and STI prevention and health promotion work.

The most effective interventions to prevent MSM acquiring STI's are not known. But advice and information covering prevention, transmission and acquisition of STI's recommends:

- MSM should test at least once a year for STI's and HIV
- MSM should test every 3 months if they are having unprotected sex with new or casual partners.
- HIV negative MSM who are diagnosed with an STI need to consider HIV as a serious risk
- Drug use may be a marker of high risk behaviour

Increased rates of infection

- Increases in Sexual Health screening and testing
- Continued high levels of unsafe sexual behaviour
- Use of alcohol and recreational drugs with risky sexual behaviour
- Changes in sexual behaviour
- Increased asymptomatic screening of extra-genital sites in MSM
- Improved detection of MSM gonococcal/chlamydial infections.
- Improved sensitivities/specificities with PCR/NAAT testing
- Increased patient access to screening clinics
- Self-collection/postal samples (see TDL TINIES page 3)
- Education
- Travel – risk of acquiring an STI is 3 times more likely in travellers who have casual sex.

HIV in the UK (2014): HIV testing is a priority if HIV prevention efforts are to be improved

A new report published by Public Health England (PHE) (November 2014), shows that there are now nearly 110,000 people living with HIV in the UK. Around a quarter of these (26,100) are unaware of their infection and at risk of passing on the virus to others through unprotected sex.

The report shows around 6% of gay and bisexual men are now living with HIV, rising to 13% in London – with 3,250 newly diagnosed in 2013, an all-time annual high. It is estimated that over 7,000 gay men have an HIV infection that remains undiagnosed and that an estimated 2,800 men acquired HIV in 2013. These figures reinforce the need to further increase both the numbers and frequency of HIV tests, which is critical to tackling the ongoing high levels of HIV transmission.

Adherence to 2008 national guidelines for HIV testing in the UK is poor outside of GUM/SH and antenatal clinics. Low levels of provider test offer appear to be a major contributor to this. Failure to adhere to testing guidelines is likely to be contributing to late diagnosis with implications for poorer clinical outcomes and continued onwards transmission of HIV.

Risk factors

- Youth
- Failure to use barrier contraceptives
- Non-regular sexual relationships
- Homosexuality
- Travel and risky sexual encounters
- Intravenous drug use
- African origin (Sub-Saharan Africa)
- Social deprivation
- Prostitution/Promiscuity
- Poor access to advice and treatment of STDs

TDL Sexual Health Profiles

STD1 MALE PROFILE

Urethral Micro Swab
Chlamydia/Gonorrhoea (Urine)
Syphilis IgG/IgM

TAT 2 DAYS

STD1

B STM FCRU

STD2 MALE PROFILE PLUS

HIV 1 & 2 Abs/p24 Antigen
Hep B Surface Antigen
Hep C Abs
Hep C Ag (early detection)
Syphilis IgG/IgM

Chlamydia/Gonorrhoea (urine)
Herpes Simplex I/II by PCR

Urethral Swab for culture

TAT 4 DAYS

STD2

B STM FCRU

STD3 FEMALE PROFILE

Syphilis IgG/IgM
Chlamydia/Gonorrhoea (PCR Swab)
High vaginal Swab (Culture swab)

TAT 2 DAYS

STD3

B STM PCR

STD QUAD

Syphilis IgG/IgM
HIV 1&2/p24 Antigen
Chlamydia (Urine)
Gonorrhoea (urine)

TAT 2 DAYS

STDQ

B FCRU

STD4 FEMALE PROFILE PLUS

HIV 1 & 2 Abs/p24 Antigen
Hep B Surface Antigen
Hep C Abs
Hep C Ag (early detection)
Syphilis IgG/IgM
Chlamydia/Gonorrhoea
Herpes Simplex I/II by PCR
High Vaginal Swab for culture

TAT 4 DAYS

STD4

B STM PCR

STD5 BLOODS ONLY

HIV 1&2/p24 Antigen
Hepatitis B Surface Antigen
Hep C Abs
Hep C Ag (early detection)
Syphilis IgG/IgM

TAT 4 HOURS

STD5

B

STD6 BLOODS ONLY WITHOUT HIV

Hepatitis B Surface Antigen
Hep C Abs
Hep C Ag (early detection)
Syphilis IgG/IgM

TAT 4 HOURS

STD6

B

EARLY DETECTION SCREEN (HIV1/HIV2/HBV/HCV by PCR/NAT)

Positive findings will be reflexed for individual qualitative confirmatory testing using the Roche Cobas Ampliscreen

HIV1 and HIV2 (RNA)
Hepatitis B Virus (HBV DNA)
Hepatitis C Virus (HCV RNA)

Sample must be received in the laboratory within 2 days of sample taking

TAT 3 DAYS

STDX

A 10mls or 2x4mls

STD8 VAGINITIS/BV PROFILE

Candida species
Gardnerella vaginalis by PCR
Trichomonas vaginalis by PCR

TAT 3 DAY

STD8

PCR STM

STD9 SYMPTOMATIC LESION SAMPLE USING PCR SWAB

Syphilis by PCR
Herpes Simplex I/II by PCR
(from single swab)

TAT 7 DAYS

STD9

PCR

7 STI PROFILE BY PCR (7 TESTS FROM 1 SAMPLE)

Chlamydia trachomatis
N. gonorrhoea
Mycoplasma genitalium
Ureaplasma
Trichomonas vaginalis
Gardnerella vaginalis
Herpes Simplex I/II

All tests can be requested individually.

TAT 2 DAYS

PP12

FCRU OR PCR Swab OR TPV OR Semen

EARLY DETECTION SCREEN WITH SYPHILIS (HIV1/HIV2/HBV/HCV by PCR)

Positive findings will be reflexed for individual qualitative confirmatory testing using the Roche Cobas Ampliscreen

HIV1 and HIV2 (RNA)
Hepatitis B Virus (HBV DNA)
Hepatitis C Virus (HCV RNA)
Syphilis IgG/IgM

Sample must be received in the laboratory within 2 days of sample taking

TAT 3 DAYS

STXX

B A 10mls or 2x4mls

*FAST*est Test Sexual Health Screening–ahead of expected time

FCT	*FAST* Chlamydia Urine	FSCT	*FAST* Chlamydia Swab	FTCG	*FAST* CT/NG Throat Swab
FGN	*FAST* Gonorrhoea Urine	FSGN	*FAST* Gonorrhoea Swab	FRCG	*FAST* CT/NG Rectal Swab
FCG	*FAST* CT/NG Urine	FSCG	*FAST* CT/NG Swab		

- Simultaneous RT-PCR detection of both CT and Dual Target NG
- Sample Adequacy and Process Controls for every sample tested
- The FASTEST Results: HIV/HBV/HCV/ Syphilis and CT/NG in 4 hours*
- Runs on: Cepheid GeneXpert® System CE IVD

FAST SSC
Fast Screen *SHORT*

HIV 1&2/p24 Ag
Syphilis IgM/IgG
FAST Urine CT/NG

TAT 4 HOURS*

FSSC

B FCRU

FAST USC
Fast Screen *URINE*

HIV 1&2/p24 Ag
Hep B sAg
Hep C Abs
Hep C Ag
Syphilis IgG/IgM
FAST Urine CT/NG

TAT 4 HOURS*

FUSC

B FCRU

FAST SSC
Fast Screen *SWAB*

HIV 1&2/p24 Ag
Hep B sAg
Hep C Abs
Hep C Ag
Syphilis IgG/IgM
FAST Swab CT/NG

TAT 4 HOURS*

FSWS

B FCRU

7 STDs – Sexual Health Profile by PCR

- Chlamydia
- Gonorrhoea
- Mycoplasma genitalium
- Ureaplasma urealyticum
- Trichomonas vaginalis
- Gardnerella vaginalis
- Herpes Simplex I/II

Tests can be requested individually or as a profile of 7 tests from one sample.

Choice of Sample types

Urine	✓
PCR Swab	✓
Cytyc Thin Prep Vial	✓
Semen	✓

Sexual Health – Testing for Infection and Infertility by PCR

Being able to test for 7 tests from 1 sample type of choice (First Catch Random Urine sample, PCR swab, Thin Prep Vial or Semen) provides several advantages, and is more cost effective. Tests can also be requested as single assays, or in combination.

Single tests	Code	Urine*	PCR Swab	Cytyc Vial	Semen
Chlamydia trachomatis	**CPCR**	✓	✓	✓	✓
N. gonorrohea	**CGON**	✓	✓	✓	✓
Mycoplasma genitalium	**MGEN**	✓	✓	✓	✓
Ureaplasma urealyticum	**UGEN**	✓	✓	✓	✓
Mycoplasma/Ureaplasma	**MUPC**	✓	✓	✓	✓
Trichomonas vaginalis	**TVPC**	✓	✓	✓	✓
Gardnerella vaginalis	**GVPC**	✓	✓	✓	✓
Herpes Simplex I/II	**HERD**	✓	✓	✓	✓

* first catch random urine

7 STI PROFILE BY PCR (7 TESTS FROM 1 SAMPLE)

Chlamydia trachomatis
N. gonorrhoea
Mycoplasma genitalium
Ureaplasma
Trichomonas vaginalis
Gardnerella vaginalis
Herpes Simplex I/II

All tests can be requested individually.

TAT 2 DAYS

PP12

FCRU OR PCR Swab OR TPV OR Semen

TDL TINIES for self collection blood samples

tinies@tdlpathology.com

The range of tests for Sexual Health Screening includes options for self-collection blood samples (home sample collection not home testing) and postal pathology using TDL TINIES. Orders for TDL TINIES (packs with instructions) can be made up by TDL, by arrangement, or supplied directly to doctors or healthcare companies. This is not point of care testing. All testing is undertaken in the laboratory and results for TINIES and POSTAL PATHOLOGY are always returned directly to the healthcare company or doctor, not to the patient.

Up to 4 tests can be taken from one TDL TINY

- HIV 1&2/p24 Antigen
- Hep B sAg
- Hep C Abs
- Hep C Antigen for early detection
- Syphilis IgG/IgM

Packs can also be made up for urine, swabs and TINY (e.g. MSM self-collection packs are made up for self-sample collection for:

TINY	URINE	PCR SWABS
HIV 1&2/p24	CT/GC	Rectal
Syphilis		Pharyngeal

Reactive samples must be followed up with a venous sample for confirmatory testing. For information and packs, please contact Annette Wilkinson on **020 7307 7343** or email **tinies@tdlpathology.com**

HPV as first test for Screening Programmes Progression to Self-Collection HPV Test

The number of women of all ages who do not attend for smear tests has been falling over the past decade – the proportion currently stands at about one in five – or 20%. Even those who do attend after receiving their invitation often wait – sometimes up to 2-3 years before attending. About one third of women do not know what causes cervical cancer and more than half are unaware of the key role that HPV plays in the development of cervical cancer. Anxiety, fear of pain and embarrassment also contribute to non-attendance.

HPV is the primary cause of nearly all cervical cancer. In most cases, the HPV virus is harmless and causes no symptoms. Most women who acquire HPV are able to clear the infection through their own immune systems. However, persistent presence of high-risk types of HPV can cause cervical lesions which over time may develop into cancer if untreated. Testing for HPV determines the presence, or absence, of HPV and will determine whether the HPV type present is one of a high risk for cancer.

The USA's FDA has now approved an HPV test that can be used alone instead of the Pap test to screen for cervical cancer. Australia's national screening programme (2015 for 2016) will screen cells for HPV, and then carry out cytology based screening if the virus is found. This approach has been shown to lead to the detection of a larger number of treatable pre-cancerous lesions.

A study published in the Lancet involving 176,464 women over a 6/7 year period concluded that HPV based screening provided 60 - 70% greater protection against the development of invasive cancer of the cervix than cytology based screening.* The total incidence of invasive cancer 5 to 6 years after a negative HPV test was lower than that 3 to 5 years after a negative cytology test. In 2013 the UK's six sentinel sites started pilot studies for HPV primary screening.

The **Self Collection HPV Test** provides women with the option to self-collect a vaginal specimen that is then sent to the laboratory for testing; this cannot be done for a pap smear. There is well documented high level of concordance between the HPV DNA results from self-collected and clinician-collected specimens confirming that the self-obtained samples are representative of the HPV types which infect the cervix.

The **Self-Collection HPV Test** is validated, using a Rovers® Evelyn Brush Sampler, CE marked for vaginal cell collection. The self taken sample processed for HPV DNA subtypes. A negative result means that high-risk subtypes HPV were not detected and the patient is at extremely low risk of developing high-grade cervical disease before their next routine visit. A positive HPV result might indicate an increased risk of developing cervical cancer. The laboratory report provides a clear recommendation for follow-up/colposcopy.

The value of HPV DNA testing in cervical cancer screening and disease detection has been proven over and over again. Self-collection of specimens for HPV testing is not intended to replace existing patient management pathways but allows for:

- Those who wish to test following a change of sexual partner
- Option for identifying the high risk DNA subtypes.
- Personal preference to self-collect vaginal samples
- An acceptable option for women who avoid having regular cervical smears

* The Lancet, Volume 383, Issue 9916, Pages 493–494, 8 February

When to test? What to test? How to test?

BLOOD		INCUBATION PERIOD	SAMPLE SITE	TEST	TEST CODE	SAMPLE TYPE	TAT
Syphilis	Bacterial	9–21 days, but up to 90 days	Blood	**Syphilis IgG / IgM**	SERJ	B	4 hours
Herpes Simplex Virus I/II	Viral	IgG 4–6 weeks after exposure IgM 5–35 days after exposure, after which test IgG	Blood Blood	**Herpes IgG (past infection)** **Herpes IgM (current / recent)**	HERP HERM	B B	2 days 2 days
HIV	Viral	Usually 10–90 days, but up to 180 days	Blood Blood	**HIV I&II / p24 antigen**	HDUO	B	4 hours
Hep B	Viral	Usually 45–180 days, average of 60–90 days	Blood Blood	**Hep B surface antigen**	AUAG	B	4 hours
Hep C Ab	Viral	Usually 9–180 days, average of 45–65 days	Blood Blood	**Hep C Antibodies**	HEPC	B	4 hours
Hep C Ag	Viral	Usually 9–180 days, average of 45–65 days	Blood Blood	**Hep C Antigen** (See lab guide page 63) Early detection at 10 days	HCAG	B	4 hours

EARLY DETECTION PROFILES BY PCR	INCUBATION PERIOD	SAMPLE SITE	TEST	TEST CODE	SAMPLE TYPE	TAT
7 STIs by PCR	One sample for 7 STI Tests	Urine Cervix Vagina	**Chlamydia** **Gonorrhoea** **Mycoplasma genitalium** **Ureaplasma genitalium** **Trichomonas vaginalis** **Gardnerella vaginalis** **Herpes Simplex I/II**	PP12 PP12 PP12	**Thin Prep Vial** or **First Catch Urine** or **PCR Swab**	2 days 2 days 2 days
HIV / HBV / HCV	Early Detection Screen by PCR Multiplex HIV/HCV at 10 day	Blood **Sample must be received in the laboratory within 2 days of sample taking**	**HIV 1&2 RNA** **Hepatitis B (HBV DNA)** **Hepatitis C (HCV RNA)**	STDX	A 10mls or 2 x 4mls	3 days

The Self Collection HPV Test provides women with the option to self-collect a vaginal sample that is then sent to the laboratory for testing. Results will always be sent to the requesting clinician, clinic or healthcare organisation.

HPVY	Self-Collected HPV DNA with individual reporting of subtypes 16, and 18 and collective reporting of the other high risk subtypes (31, 33, 35, 39, 45, 51, 52, 56, 58, 59, 66, 68).
HPVZ	Self-Collected HPV DNA with individual reporting of all subtypes 16, 18, 31, 33, 35, 39, 45, 51, 52,56, 58, 59, 66, 68.

For more information, or to order Self-Collection HPV Test Packs, please contact Annette Wilkinson on 020 7307 7343 or annette.wilkinson@tdlpathology.com

RETESTING/TEST OF CURE

Chlamydia: Allow up to 6 weeks before retesting. NAAT/PCR tests are sensitive and will pick up the DNA from a previous infection if retesting is undertaken too soon after treatment, when a positive result may be a sign of continuing or re-infection from the initial infection.

Gonorrhoea can usually be treated successfully with a single antibiotic injection followed by one antibiotic tablet. There is a lack of evidence on optimal timing for test of cure and method of testing but retesting a week or two after treatment will confirm clearance of gonorrhoea. Test of cure is recommended following treatment for all gonococcal infections. This is to identify treatment failure and emerging resistance to ceftriaxone and cefixime.

Trichomonas vaginalis: If antibiotics are taken correctly, follow-up tests or examinations for trichomonas shouldn't be needed, but if treatment has not been completed, or there is a chance of becoming re-infected, or symptoms continue, then repeat testing and perhaps different treatment may be indicated.

When to test? What to test? How to test?

STI's can be caused by virus, fungus, parasite or bacteria. Anyone who is sexually active may be at risk of acquiring an STI. The risk is higher for those with increased numbers of sexual partners, or who have had sex with someone who has/had many partners, or have had unprotected sex.

STD		INCUBATION PERIOD	SAMPLE SITE	TEST	TEST CODE	SAMPLE TYPE	TAT
Chlamydia CT	Bacterial	1–3 weeks, up to 6 weeks	Urine	**Chlamydia**	CPCR	**First Catch Urine**	2 days
			Cervix/Vagina	**Chlamydia**	SPCR	**PCR Swab**	2 days
			Cervix/Vagina	**Chlamydia**	TPCR	**Thin Prep Vial**	5 days
Gonorrhoea GC	Bacterial	2–7 days, up to 1 month	Urine	**Gonorrhoea by PCR**	CGON	**First Catch Urine**	2 days
			Cervix/Vagina	**Gonorrhoea by PCR**	SGON	**PCR Swab**	2 days
			Cervix/Vagina	**Gonorrhoea by PCR**	TGON	**Thin Prep Vial**	5 days
			Cervix/Vagina	**Gonorrhoea by CULTURE**	GONN	**Culture swab**	2-3 days
CT/GC Combined	Bacterial	1–3 weeks, up to 6 weeks	Urine	**CT/GC**	CCG	**First Catch Urine**	2 days
			Cervix/Vagina	**CT/GC**	SCG	**PCR Swab**	2 days
			Cervix/Vagina	**CT/GC**	TCG	**Thin Prep Vial**	5 days
			Rectum	**CT/GC**	RSCG	**PCR Swab**	2 days
			Throat	**CT/GC**	TSCG	**PCR Swab**	2 days
Mycoplasma genitalium	Bacterial	Symptoms develop at 1–3 weeks	Urine	**Mycoplasma genitalium by PCR**	MGEN	**First Catch Urine**	5 days
			GU Site	**Mycoplasma genitalium by PCR**	MGEN	**PCR Swab**	5 days
			Cervix/Vagina	**Mycoplasma genitalium by PCR**	MGEN	**Thin Prep Vial**	5 days
Ureaplasma urealyticum	Bacterial	Symptoms develop at 1–3 weeks	Urine	**Ureaplasma by PCR**	UGEN	**First Catch Urine**	5 days
			GU Site	**Ureaplasma by PCR**	UGEN	**PCR Swab**	5 days
			Cervix/Vagina	**Ureaplasma by PCR**	UGEN	**Thin Prep Vial**	5 days
Trichomonas vaginalis	Parasitic	4–28 days, many patients are asymptomatic carriers	Urine	**Trichomonas vaginalis by PCR**	TVPC	**First Catch Urine**	5 days
			GU Site	**Trichomonas vaginalis by PCR**	TVPC	**PCR Swab**	5 days
			Cervix/Vagina	**Trichomonas vaginalis by PCR**	TVPC	**Thin Prep Vial**	5 days
Gardnerella vaginalis	Bacterial	Imbalance of normal flora	Urine	**Gardnerella vaginalis by PCR**	GVPC	**First Catch Urine**	5 days
			GU Site	**Gardnerella vaginalis by PCR**	GVPC	**PCR Swab**	5 days
			Cervix/Vagina	**Gardnerella vaginalis by PCR**	GVPC	**Thin Prep Vial**	5 days
Bacterial Vaginosis (BV)	Bacterial	Imbalance of normal flora	Cervix/Vagina	**Bacterial Vaginosis (BV) Profile** by both PCR and CULTURE	STD8	**Both Culture & PCR swab**	3 days
Herpes Simplex Viral I/II	Viral	2–14 days, testing is most appropriate for patients with symptomatic lesion(s)	PCR swab	**Herpes by PCR**	HERS	**PCR Swab**	5 days
			PCR swab	**Herpes by PCR**	HERD	**First Catch Urine**	5 days
Human Papillomavirus	Viral	HPV is the most common sexually transmitted infection – usually asymptomatic	Cervical cells	**HPV DNA/mRNA**	HPVT	**Thin Prep Vial**	5 days
			Cells/papilloma from site (throat/penile/anal)	**HPV Typed DNA**	HP20	**PCR Swab**	5 days
				HPV Typed DNA	HP20	**Cells/Papilloma**	5 days
Genital warts	Viral	Weeks/months after exposure	GU Warts	**HPV Typed DNA**	HPVT	**Thin Prep Vial**	5 days
				HPV Typed DNA	HP20	**PCR Swab**	5 days
				HPV Typed DNA	HP20	**Cells/Papilloma**	5 days
Syphilis/Herpes	Bacterial/ Viral	Whenever active lesions are present	Symptomatic Lesion	**Syphilis/Herpes Lesion Profile**	STD9	**PCR Swab**	7 days

High Risk Human Papillomavirus (HR-HPV) Introducing Triage and Test of Cure

Cervical cancer prevention is in transition, with a move from cytology only based screening programmes to HPV based screening. HPV testing will be important to decide which women need to be referred for further evaluation or treatment. Treatment will be aimed at women who are at risk of developing cervical cancer and extended screening intervals should become more confidently accepted after a negative HPV test.

The aetiological role of HPV infection among women with cervical cancer is now clearly established, and the use of testing for high risk HPV in the management of low grade cytological abnormalities of the cervix well documented.

There are over 100 subtypes of HPV, most of which do not cause significant disease but some (notably types 16 and 18 which account for 70% of all cervical cancer cases worldwide) have been identified and confirmed as causal agents for cervical cancer. These are known as High Risk HPV (HR-HPV) types. Although most women will have at least one HPV infection at some time in their lives, the majority of HPV infections are transient and are cleared by the immune system. A small but still significant number of HPV infections do not clear spontaneously, and it is these women who are at an increased risk of developing cervical intraepithelial neoplasia (CIN) and cervical cancer. Because it is recognised that almost 100% of cervical cancers contain HPV DNA women with no evidence of HR-HPV infection are extremely unlikely to develop cervical cancer in the short to medium term.

HPV Triage and Test of Cure has been introduced across the NHS Cervical Screening Programme in keeping with national protocols. All women in the screening age range of 24.5–64 are eligible for HPV Triage and Test of Cure.

HPV Triage introduces reflex testing for HR-HPV for women whose cervical cytology shows either borderline changes or low grade dyskaryosis. A recommendation to refer for colposcopy will be made if HR-HPV is detected. If results show that HPV is not detected, the recommendation will be to return to routine screening.

Test of Cure uses HR-HPV testing to assess the risk of residual or recurrent disease in women who have been treated for any grade of CIN. Women who have normal cytology and are negative for HR-HPV at the time of their follow up screening appointment are at very low risk of residual disease, and can be returned to 3 yearly recall, unless advised different by their gynaecologist. If HR-HPV is detected she needs to be referred again for colposcopy and followed up in accordance with national guidelines. This strategy will also be applied to women receiving treatment for CGIN or for invasive disease.

TDL provides a HR-HPV Assay that is an NHS approved qualitative DNA assay, able to collectively test for 14 high risk HPV subtypes (16, 18, 31, 33, 35, 39, 45, 51, 52, 56, 58, 59, 66, 68) and partially genotype 16 and 18. This assay provides the minimum necessary information for patient stratification.

Any request for Cervical Cytology that is not accompanied by a specific request for HPV testing, but is reported with either borderline or low grade changes, will automatically reflex to 16/18 HPV high risk DNA test. The cost of this reflexed test is included in the price of the cervical cytology (PAPT). There is no additional charge. For women whose cytology findings are high grade, the recommendation for referral for colposcopy will continue to be given, even if HPV DNA is not detected.

The primary benefit of using HPV testing lies in its high sensitivity and high negative predictive value, but HPV DNA testing, on its own, cannot identify progression from transient to a transforming infection or oncogenic activity. This is when an HPV infection has transformed from merely being present and insignificant, to become an integrated infection. The expression of viral oncoproteins E6 and E7, which affect cell cycle control, initiate the cervical cancer process. The detection of E6/E7 mRNA confirms the persistent expression of viral oncoproteins in human cells.

TEST	CODE	SAMPLE REQS	TAT
HPV DNA types 16, 18 + collective reporting of 12 other High Risk DNA subtypes	**HPV**	**TPV**	2 days
*If HPV has not been included with a request for Thin Prep PAP (PAPT) and the cervical cytology shows borderline or mild changes, this High Risk HPV (HR-HPV) DNA test will be undertaken at no additional charge. HR-HPV subtypes are reported collectively (negative/positive) with Types 16 and 18 reported if present.			
HPV DNA types 16, 18 + all other High Risk DNA subtypes	**HPV**	**TPV**	2 days
High Risk HPV (HR-HPV) subtypes, reported collectively (negative/positive) with Types 16 and 18 reported if present.			
HPV Typed DNA	**HP20**	**TPV/PCR**	5 days
HPV DNA subtypes will be reported (5 low risk and 14 high risk).			
HPV Typed DNA/mRNA	**HPVT**	**TPV**	5 days
If one or more of types 16, 18, 31, 33 or 45 are positive, reflex testing for expression of E6/E7 oncoproteins will be undertaken.			
HPV mRNA only	**HPVR**	**TPV**	3 days
Usually requested by laboratories who have undertaken DNA testing, this option confirms expression of E6/E7 oncoproteins.			

The benefit of a negative HPV result is its negative predictive value – meaning a negative result indicates that a patient is at very low risk of developing cervical disease. The Negative Predictive Value (NPV) for both DNA and mRNA is the same. DNA based tests detect presence of virus only, whilst the mRNA-based test detects the persistence of viral oncogenic expression. mRNA testing can be undertaken from Hologic Thin Prep samples only.

HPV/PAPT Combined Report

Where HPV result is reported with Cervical Cytology, a recommendation for patient management will be given, based on the combined findings. Patients who are monitored by a Colposcopist/Gynaecologist will receive a recommendation indicating that patient management is at clinician's discretion.

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