Diagnostic Testing of Sexually Transmitted Infections AHS – G2157

File Name: diagnostic_testing_of_sexually_transmitted_infections

Description of Procedure or Service

Description

Sexually transmitted infections (STIs), often referred to as sexually transmitted diseases or STDs, include a variety of pathogenic bacteria, virus, and other microorganisms that are spread through sexual contact and can cause a multitude of complications if left untreated. Chlamydia and gonorrhea, caused by Chlamydia trachomatis and Neisseria gonorrhoeae, respectively, have high rates of occurrence in the United States and can cause pelvic inflammatory disease (PID), infertility, and pregnancy complications. The causative agent of syphilis is Treponema pallidum; if left untreated, syphilis can lead to serious cardiac and neurological conditions (Ghanem & Tuddenham, 2017). Human papillomavirus (HPV) is a double-stranded DNA virus that can be sexually transmitted and is associated with cervical cancer, vulvar/vaginal cancer, anal cancer, oropharyngeal cancer, penile cancer, and both genital and nongenital warts. “Globally, anogenital HPV is the most common sexually transmitted infection” with an estimated 80% of sexually active adults exposed to it at least once in their lifetime (Palefsky, 2018). Herpes simplex virus (HSV) is a common STI where many individuals are asymptomatic. HSV infection has been linked to an increased risk of other infections, including HIV, and in rare cases, can also result in HSV meningitis or proctitis (Albrecht, 2017). In general, risk factors for STIs can include both behavioral elements, such as multiple sex partners, working in a sex trade, and inconsistent use of condoms when in non-monogamous relationships as well as demographic risks, including men who have sex with men (MSM), prior STI diagnosis, admission to correctional facilities, and lower socioeconomic status (Ghanem & Tuddenham, 2017).

This policy is limited to testing for C. trachomatis, N. gonorrhoeae, T. pallidum, HSV, and HPV. The following conditions and/or tests are discussed in the corresponding policies:

- HIV: AHS-M2094 HIV Tropism; AHS-M2093 HIV Genotyping and Phenotyping; AHS-M2116 Plasma HIV-1 RNA Quantification for HIV-1 Infection
- Hepatitis C: AHS-G2036
- Preventative Screening: AHS-G2009
- Pediatric Preventive Screening: AHS-G2042
- Prenatal Screening: AHS-G2035
- Cervical Cancer Screening: AHS-G2002
- Pathogen Panel Testing: AHS-G2149

Scientific Background

Chlamydia
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Chlamydia, caused by the bacterium Chlamydia trachomatis, is usually an asymptomatic sexually transmitted infection that can be passed to a newborn from an infected mother, potentially resulting in conjunctivitis and/or pneumonia. Symptomatic infections can include cervicitis, pelvic inflammatory disease (PID), and Fitzhugh-Curtis syndrome in women as well as epididymitis, prostatitis, and reactive arthritis triad in men. Both men and women can have proctitis, urethritis, conjunctivitis, pharyngitis, and genital lymphogranuloma venereum as a result of a chlamydial infection. Nucleic acid amplification testing (NAAT) for chlamydia is the gold standard due to high specificity and sensitivity instead of using culture testing, microscopy, or antigen detection (Marrazzo, 2018). In the U.S. alone, in 2016, over 1.5 million cases of chlamydia were reported to the CDC, but the CDC estimates that 2.86 million chlamydial infections occur annually. This underreporting is due to people being asymptomatic and, therefore, not seeking treatment. Highest prevalence occurs among men who have sex with men (MSM) and young people. “It is estimated that 1 in 20 sexually active young women aged 14-24 years has chlamydia (CDC, 2016a).”

Gonorrhea

Gonorrhea is a sexually transmitted infection caused by the bacterium Neisseria gonorrhoeae. A gonorrheal infection can cause many of the same complications as chlamydia, including PID, cervicitis, and Fitzhugh-Curtis syndrome in women and epididymitis in men. Urethritis, pharyngitis, and proctitis can also occur; in fact, “N. gonorrhoeae can be isolated from the urethra in up to 90 percent of women with gonococcal cervicitis (Ghanem, 2018).” Like chlamydia, if left untreated, gonorrhea can be spread from mother to newborn, resulting in conjunctivitis. NAAT is the best method to diagnose gonorrhea, but culture testing is still used to determine antimicrobial susceptibility due to an increase in antibiotic resistance (Bignell & Unemo, 2013). In 2016, the CDC reported an 18.5% increase since 2015 in the number of cases of gonorrhea reported in the United States (CDC, 2017c).

Syphilis

Syphilis is caused by the bacterium Treponema pallidum, and it progresses, if left untreated, through various stages—primary, secondary, early-latent, late-latent, and late stage syphilis—until infecting the central nervous system. “Syphilis infection is associated with HIV infection and increases the risk for acquiring or spreading HIV” (Cantor, Pappas, Daeges, & Nelson, 2016). Worldwide, the median rates of infection in males and females were 17.7 cases per 100,000 and 17.2 cases per 100,000, respectively, according to the World Health Organization. The U.S. has reported an increase in the rate of syphilis between 2000 and 2016, and approximately 90% of the new cases of primary and secondary syphilis during this period occurred in men with 81% occurring in men who have sex with men (MSM). “Of particular concern is the uptick in cases of congenital syphilis that is also being seen, with 15.7 cases per 100,000 live births reported in 2016 (Hicks & Clement, 2018).”

Similar to other STIs, syphilis is often asymptomatic. For symptomatic syphilis, the signs and symptoms can vary, depending on the stage of disease. Primary syphilis can have a characteristic chancre, a skin lesion, that is usually painless and often heal even in the absence of treatment. Secondary syphilis occurs weeks to months later and can be manifested by typical immunologic responses, such as fever, lethargy, and so on; adenopathy; rash; alopecia; hepatitis; gastrointestinal abnormalities; and even early symptoms of neurological infection, if left untreated. Later stages of syphilis can include cardiovascular abnormalities and progression of neurological syphilitic infection. Asymptomatic, latent syphilis can also occur; moreover, “pregnant women with latent syphilis can transmit T. pallidum to their fetus for up to four years after acquisition (Hicks & Clement, 2018).”

The standard protocol for diagnosing a syphilis infection is to use a two-tiered serological testing algorithm of treponemal testing and nontreponemal testing. Treponemal testing are typically more complex than the latter, and they rely upon the detection of specific treponemal antigens using
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enzyme immunoassay (EIA), particle agglutination assay, fluorescence, or chemiluminescence immunoassay (CIA). Nontreponemal testing, including the rapid plasma reagin test (RPR) and the venereal disease research laboratory (VDRL) test, “are based upon the reactivity of serum from infected patients to a cardiolipin-cholesterol-lecithin antigen (Hicks & Clement, 2017)”. Rapid serological testing using darkfield microscopy is not as universally used due to complexity and cost. NAAT has not been FDA-approved at this time and is not typically performed for genital syphilis. “There is no internationally approved PCR for T. pallidum and accordingly, it is crucial to select a strictly validated method and always use it with appropriate quality controls (Janier et al., 2014).”

**Herpes Simplex Virus (HSV)**

Herpes Simplex Virus-2 (HSV-2) is the common cause of most of genital herpes simplex infections worldwide with the CDC estimating that 50 million people in the U.S. were infected with HSV-2 in 2015 (Workowski & Bolan, 2015). More than 750,000 people in the U.S. are infected each year with genital herpes; moreover, HSV-1 genital herpes is increasing in recent years. This trend is believed to be due to a decline in childhood oral HSV-1 infections that in the past increased immune resistance to genital HSV-1 infections (CDC, 2017a). Primary genital herpes infections can present with genital ulcers as well as other immunological responses, such as fever and lymphadenopathy; however, for some people, a primary genital herpes infection is asymptomatic. Nonprimary infections occur when a patient acquires HSV-1 with pre-existing HSV-2 antibodies or vice versa. Recurrent infections can be either symptomatic or asymptomatic, which can be referred as subclinical. A minority of HSV-positive patients can also present with meningitis and/or proctitis (Albrecht, 2017). Vertical transmission from mother to newborn can occur during delivery, especially if the mother acquires a primary infection near the end of the pregnancy. This vertical transmission can occur even if the mother is asymptomatic (Riley & Wald, 2018). Diagnosis of genital herpes infection can be performed by viral culture, NAAT, and serological testing. “Cell culture and PCR-based testing are the preferred tests for a patient presenting with active lesions, although PCR-based testing has the greatest overall sensitivity and specificity (Albrecht, 2017).”

**Human Papillomavirus (HPV)**

Anogenital HPV infection is the most common STI worldwide with an estimation that “at least 80 percent of sexually active women and men are exposed to HPV once in their lifetime. However, many experts believe that virtually all sexually active adults have been infected by HPV…” (Palefsky, 2018). This is due to the large number of different types of HPV known to infect the genital tract—at least 40 characterized to date—and the transitory nature of HPV infections. HPV is associated with a variety of cancers, including anal, penile, vulvar, vaginal, and oropharyngeal cancer; moreover, the carcinogenic effect of an HPV infection can be years after the initial diagnosis of HPV. Multiple HPV vaccinations have been approved for use in the U.S., and the CDC recommends vaccination for HPV for all children ages 11 or 12 (CDC, 2017b). HPV can be detected from swab samples and can be included in many routine cervical exams. High-risk oncogenic HPV testing is commercially available (Feldman & Crum, 2017).

**Analytical Validity**

A 2005 study by Cook and colleagues (Cook, Hutchison, Ostergaard, Braithwaite, & Ness, 2005) reviewed the validity of NAAT for chlamydia and gonorrhea from urine samples as compared to swabs obtained directly from either the cervix or urethra. They reviewed 29 different studies and only included studies using collections of samples obtained from two anatomic sites. Each test required either a secondary culture confirmation or a secondary NAAT-based confirmation. Over 20,000 different patients were included in the pooled study, and three different NAAT assays were monitored—polymerase chain reaction (PCR), transcription-mediated amplification (TMA), and strand displacement amplification (SDA). “The pooled study specificities of each of the 3 assays exceeded 97% when urine samples were tested, for both chlamydial infection and gonorrhea and in both men and women.” The use of PCR for gonorrheal testing, though, from female urine samples
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had only 55.6% specificity. The authors concluded the following: “Results of nucleic acid amplification tests for C. trachomatis on urine samples are nearly identical to those obtained on samples collected directly from the cervix or urethra. Although all 3 assays can also be used to test for N. gonorrhoeae, the sensitivity of the polymerase chain reaction assay in women is too low to recommend its routine use to test for gonorrhea in urine specimens” (Cook et al., 2005).

Due to an increase in demand for enzyme immunoassay-based testing of syphilis, Wong and colleagues (Wong et al., 2011) evaluated the validity of such testing—using the Trep-Sure EIA test—to that of the documented Venereal Disease Research Laboratory (VDRL) test and Treponema pallidum particle agglutination (TPPA) assay. Their research included 674 samples. The EIA-based test had a sensitivity of 98.0% and a specificity of 98.6% (Cantor et al., 2016). The authors conclude that “an IgM/IgG sensitive EIA would be an effective alternative to VDRL for syphilis screening” (Wong et al., 2011). An earlier study using another EIA-based assay, the Trep-Check IgG EIA test, conducted at the National Microbiology Laboratory of Canada (Tsang, Martin, Lau, & Sawatzky, 2007) did not report as positive results as the Wong study. This research consisted of 604 samples submitted from local or provincial hospitals for confirmation of local testing. Their findings were that the Trep-Check IgG EIA had a sensitivity of 85.3% and specificity of 95.6%, but they also report a positive predictive value of 53.7% (Tsang et al., 2007) as compared to the positive predictive value of 98.4% of the Trep-Sure EIA test (Cantor et al., 2016; Wong et al., 2011). These results can be compared to the published results of the accuracy of the TPPA assay of 87.1% sensitivity, 100% specificity, and 100% positive predictive value—albeit in a smaller sample size (n = 198) (Cantor et al., 2016; Juarez-Figueroa, Uribe-Salas, Garcia-Cisneros, Olamendi-Portugal, & Conde-Glez, 2007).

The US Preventive Services Task Force (USPSTF) conducted a systematic review of the use of serologic screening for genital herpes and published their findings in 2016 (Feltner, Grodensky, Ebel, & et al., 2016). Their extensive review consisted of 17 different studies, ranging from 24 to 3,290 participants, in 19 different publications. Reviewing only the serological testing of HSV-2, they note that the “pooled estimates of sensitivity and specificity of the most commonly used test at the manufacturer’s cutpoint were 99% (95% CI, 97%-100%) and 81% (95% CI, 68%-98%), respectively.” However, they also note that “use of this test at the manufacturer’s cutpoint in a population of 100 000 with a prevalence of HSV-2 of 16% (the seroprevalence in US adults with unknown symptom status) would result in 15 840 true-positive results and 15 960 false-positive results (positive predictive value, 50%).” They note the potential psychosocial harm due to false-positive results. The authors conclude, “Serologic screening for genital herpes is associate with a high rate of false-positive test results and psychosocial harms (Feltner et al., 2016).

The ATHENA study conducted in 2008-2009 and published in Lancet in 2011 consisted of more than 40,000 women in the U.S. aged 25 or over in 61 different clinical centers. The goal was to assess high-risk HPV16 and HPV18 testing versus traditional methods. Their results show that “in women who had colposcopy, the Cobas HPV test was more sensitive than liquid-based cytology for detection of CIN3 [cervical intraepithelial neoplasia grade 3] or worse” with 92.0% versus 53.3% for liquid cytology. “Addition of liquid-based cytology to HPV testing increased sensitivity for CIN3 or worse to 96.7%...but increased the number of screen positives by 35.2%.” The authors conclude, “HPV testing with separate HPV16 and HPV18 detection could provide an alternative, more sensitive, and efficient strategy for cervical cancer screening than do methods based solely on cytology (Castle et al., 2011).” Guenat and colleagues report a coefficient of variation of less than 8% for repeatability and reproducibility when using the Novaprep HQ+ medium in liquid-based cytology for HPV (Guenat, Launay, Riethmuller, Mougin, & Pretet, 2016). Another study comparing the validity of using urine samples in comparison with cervical samples for monitoring HPV in women over the age of 30 shows that the sensitivity of the urine testing varies considerably depending on the NAAT assay used. The multiplex type-specific PCR (E7-MPG) assay had a sensitivity of 80% and specificity of only 61% whereas the GP5+/6+ PCR assay resulted in 58% and
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89%, respectively, for sensitivity and specificity as compared to the gold standard cervical swabs (Tshomo et al., 2017).

Clinical Validity and Utility

A 2017 review of point-of-care tests (POCTs) versus near-patient NAAT for chlamydia reviewed 11 different studies consisting of a combined total of more than 13,000 patients. The pooled results show that POCTs have a sensitivity of only 53%, 37%, and 63% for cervical swabs, vaginal swabs, and male urine, respectively, but that the specificity for each ranged from 97-99%. The near-patient NAAT has a sensitivity of >98% regardless of sample with a specificity of 99.4%. “The systematic reviews show that antigen detection POCTs for CT [C. trachomatis], although easy to use, lacked sufficient sensitivity to be recommended as a screening test. A near-patient NAAT shows acceptable performance as a screening or diagnostic test but requires electricity, takes 90 min and is costly (Kelly et al., 2017).” Likewise, a review of five POCTs and one near-patient NAAT for gonorrhea in 2017 show that POTC immunochromatographic tests and optical immunoassays had sensitivities ranging from 12.5% to 70% compared to laboratory NAAT for cervical and vaginal swab samples. The specificities of the near-patient NAATs were >99.8% with sensitivities >95% (Guy et al., 2017).

A 2018 review of laboratory testing for T. pallidum in Australia (Brischetto, Gassiep, Whiley, & Norton, 2018) compared the clinical value of PCR testing for syphilis as compared to the traditional serological testing using RPR, agglutination, and/or chemiluminescence immunoassay (CMIA). This review covered all testing at the Australian lab from 2010 to 2017. They show that 19% of PCR results were positive for syphilis with 97% of those patients also showing positive serological results. The T. pallidum PCR had a sensitivity of 68% and specificity of 99% as compared to the serology testing sensitivity of 97% and 88% specificity. “Our results show that most patients with positive T. pallidum PCR results also had positive syphilis serology. Therefore, T. pallidum PCR adds little clinical value over serology for the diagnosis of syphilis in certain clinical settings (Brischetto et al., 2018).” A 2015 Chinese study (Zhiyan et al., 2015) does show that the CMIA screening is not as specific as the TPPA agglutination assay for syphilis with 18 of the 149 CMIA-positive samples being false-positive results.

The 2016 USPSTF review of genital herpes serological testing (Feltner et al., 2016) included a review of the HerpeSelect serological test consisting of the data from ten studies with a combined total of 6537 participants. The pooled, combined results show a sensitivity of 99% and specificity of 81%. Four additional studies they reviewed used the biokit HSV-2 Rapid Test assay. These studies had a combined total of 1512 participants. The sensitivity is considerably lower (84%), but the specificity was higher than the HerpeSelect assay (95%).

A study by Liu and associates (Liu et al., 2014) evaluated the clinical performance of the QuantiVirus HPV E6/E7 mRNA with respect to identifying ≥Grade 2 cervical intraepithelial neoplasia. 40.3% of the 335 female patients tested positive for high-risk HPV. They note that “the positivity rate of HPV E6/E7 mRNA increased with the severity of cytological and histological evaluation...a high specificity and a low positivity rate of E6/E7 mRNA testing as a triage test in HPV DNA-positive women can be translated into a low referral for colposcopy (Liu et al., 2014).” Another study of the QuantiVirus system in 2017 (Yao et al., 2017) of 404 HPV-positive women show no statistical difference between QuantiVirus and cytological testing in sensitivity, specificity, positive predictive value, and negative predictive value for predicting high-grade squamous intraepithelial lesion (HSIL). “HPV E6/E7 mRNA detection in cervical exfoliated cells shows the same performance as Pap triage for HSIL identification for HPV-positive women. Detection of HPV E6/E7 mRNA may be used as a new triage option for HPV-positive women (Yao et al., 2017).” A review by Arbyn and colleagues concerning the efficacy of repeat cytology versus HPV testing for atypical squamous cells of undetermined significance (ASC-US) and low-grade squamous intraepithelial lesions (LSIL) demonstrated that the pooled sensitivity of the Hybrid Capture 2 (HC2) assay for the high-risk HPV types was significantly higher than performing repeat cytology.
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(relative sensitivity of 1.27 and 1.23, respectively) for detecting CIN2+ but was significantly lower than repeat cytology for LSIL. “HPV-triage with HC2 can be recommended to triage women with ASCUS because it has higher accuracy than repeat cytology. When triaging women with LSIL, an HC2 test yields a significantly higher sensitivity, but a significantly lower specificity, compared to repeat cytology. Therefore, practice recommendations for management of women with LSIL should be balanced, taking local circumstances into account. (Arbyn et al., 2013)”

State and Federal Regulations, as applicable

The FDA approved the BD Onclarity HPV Assay, a qualitative in vitro assay of cervical swabs using PCR (i.e. a nucleic acid amplification test or NAAT), by Becton, Dickinson and Company on 02/12/2018. “The test specifically identifies types 16, 18 and 45 while concurrently detecting the other HR HPV types that include 31, 33, 35, 39, 51, 52, 56, 58, 59, 66 and 68. The BD Onclarity HPV Assay is indicated: 1) In women 21 years and older with ASC-US (atypical squamous cells of undetermined significance) cervical cytology test results, the BD Onclarity HPV Assay can be used to determine the need for referral to colposcopy; 2) In women 21 years and older with ASC-US cervical cytology test results, the BD Onclarity HPV assay can be used to detect high-risk HPV genotypes 16, 18 and 45. This information together with physicians assessment of screening history, other risk factors, and professional guidelines, may be used to guide patient management. The results of this test are not intended to prevent women from proceeding to colposcopy; 3) In women 30 years and older, the BD Onclarity HPV Assay can be used together with cervical cytology to adjunctively screen to detect high risk HPV types. This information, together with the physicians assessment of screening history, other factors, and professional guidelines, may be used to guide patient management; 4) In women 30 years and older, the BD Onclarity HPV Assay can be used to detect high-risk HPV genotypes 16, 18 and 45. This information, together with the physicians assessment of screening history, other factors, and professional guidelines, may be used to guide patient management; and 5) In women 25 years and older, the BD Onclarity HPV Assay can be used as a first-line primary cervical cancer screening test to detect high risk HPV, including 16 and 18. Women who test negative for the high risk HPV types by the BD Onclarity HPV Assay should be followed up in accordance with the physicians assessment of screening and medical history, other risk factors, and professional guidelines. Women who test positive for HPV genotypes 16 and/or 18 by the BD Onclarity HPV Assay should be referred to colposcopy. Women who test high risk HPV positive and 16 and 18 negative by the BD Onclarity HPV Assay (12 other HR HPV Positive) should be evaluated by cervical cytology to determine the need for referral to colposcopy (FDA, 2018a).”

The FDA has also approved the APTIMA HPV 16 18/45 Genotype Assay, a NAAT, for the qualitative detection of mRNA for HPV 16, 18, and 45 from Gen-Probe Incorporated on 10/12/2012; however, this test cannot distinguish between 18 and 45. Previously, on 10/28/2012, the FDA approved Gen-Probe Incorporated’s APTIMA HPV Assay, an NAAT that tests for 14 high-risk types of HPV but is unable to distinguish between the 14 types. The COBAS HPV test by Roche Molecular Systems, Inc. was approved by the FDA on 04/19/2011 as a NAAT for 14 high-risk types of HPV. This test can specifically identify HPV 16 and 18 but cannot distinguish from the other 12 types of HPV. Hologic, Inc. has two FDA-approved HPV NAAT tests—Cervista HPV 16/18 and Cervista HPV HR and GENFIND DNA Extraction Kit. Both were approved on 03/12/2009. The former is a fluorescent, isothermal-based reaction that detects HPV 16 and 18 whereas the latter screens for DNA from the 14 high-risk HPV strains (FDA, 2018b).

The FDA has approved many tests for HSV, chlamydia, gonorrhea, and syphilis. A search of the FDA Devices database of “HSV” on 07/11/2018 yielded 106 results. Likewise, a search of “chlamydia” and “syphilis” had 141 and 34 records, respectively. “Neisseria” and “gonorrhea” yielded a combined 57 records of approved FDA devices as of 07/11/2018 (FDA, 2018b).

Additionally, many labs have developed specific tests that they must validate and perform in house. These laboratory-developed tests (LDTs) are regulated by the Centers for Medicare and Medicaid
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(CMS) as high-complexity tests under the Clinical Laboratory Improvement Amendments of 1988 (CLIA’88). As an LDT, the U. S. Food and Drug Administration has not approved or cleared this test; however, FDA clearance or approval is not currently required for clinical use.

***Note: This Medical Policy is complex and technical. For questions concerning the technical language and/or specific clinical indications for its use, please consult your physician.

Policy

BCBSNC will provide coverage for diagnostic testing of sexually transmitted infections when it is determined the medical criteria or reimbursement guidelines below are met.

Benefits Application

This medical policy relates only to the services or supplies described herein. Please refer to the Member's Benefit Booklet for availability of benefits. Member's benefits may vary according to benefit design; therefore member benefit language should be reviewed before applying the terms of this medical policy.

When Diagnostic Testing of Sexually Transmitted Infections is covered

Reimbursement for testing for syphilis infection is allowed in the following situations:
1. For any asymptomatic person in a high-risk category* (See Note 1), once a year assessment consisting of the following:
   o An initial treponemal Ig test
   o A confirmatory nontreponemal test for any positive initial treponemal Ig test; OR
2. Once every three months for HIV-positive men or MSM; OR
3. As part of a pregnancy screening; OR
4. For diagnosis of any person presenting with signs and/or symptoms of a syphilis infection* (See Note 2); OR
5. A nontreponemal test as test of cure of treatment of a positive syphilis infection.

Reimbursement for screening for syphilis of asymptomatic individuals NOT belonging to a high-risk category* (See Note 1) is allowed for the following:
1. As part of newborn screening; OR
2. As part of a pregnancy screening; OR
3. As part of screening of victim of sexual assault.

Reimbursement for nucleic acid amplification tests (NAATs) for chlamydia is allowed in the following situations:
1. Once a year assessment for any asymptomatic person in a high-risk category* (See Note 3); OR
2. As part of a pregnancy screening; OR
3. For diagnosis of any person presenting with signs and/or symptoms of a chlamydial infection* (See Note 4); OR
4. For diagnosis of any person with suspected lymphogranuloma venereum (LGV); OR
5. As test of cure of treatment at least three months after initial chlamydial diagnosis.

Reimbursement for screening for chlamydia of asymptomatic individuals NOT belonging to a high-risk category* (See Note 3) is allowed for the following:
1. As part of newborn screening; OR
2. As part of pregnancy screening; OR
3. As part of screening of victim of sexual assault.

Reimbursement for nucleic acid amplification tests (NAATs) for gonorrhea is allowed in the following situations:
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1. Once a year assessment for any asymptomatic person in a high-risk category* (See Note 3); OR
2. As part of a pregnancy screening; OR
3. For diagnosis of any person presenting with signs and/or symptoms of a gonorrheal infection* (See Note 5); OR

Reimbursement for culture testing for N. gonorrhoeae is allowed for testing antimicrobial susceptibility if patient does not respond to initial treatment.

Reimbursement for screening for gonorrhea of asymptomatic individuals NOT belonging to a high-risk category* (See Note 3) is allowed for the following:
1. As part of newborn screening; OR
2. As part of pregnancy screening; OR
3. As part of screening of victim of sexual assault.

Reimbursement for nucleic acid amplification tests (NAATs) for herpes simplex virus-1 or herpes simplex virus-2 (HSV-1 and HSV-2, respectively) in patients with active genital ulcers is allowed.

Reimbursement for testing for human papillomavirus (HPV) is allowed in the following:
1. NAAT testing or immunohistochemistry testing for HPV, including testing for high-risk types HPV-16 and HPV-18, in the diagnosis and/or assessment of cancer or cancer therapy; OR
2. For women aged 30 to 65 years, once every five years as part of a cervical screening as indicated in AHS-G2002.

When Diagnostic Testing of Sexually Transmitted Infections is not covered

Reimbursement is not allowed for screening for syphilis of asymptomatic individuals NOT belonging to a high-risk category* (See Note 1).

Reimbursement is not allowed for testing for syphilis using PCR or NAAT.

Reimbursement is not allowed for Serology testing for chlamydia or lymphogranuloma venereum (LGV).

Reimbursement is not allowed for immunoassay testing for herpes simplex virus-1 (HSV-1), herpes simplex virus-2 (HSV-2), and/or herpes simplex (non-specific type test).

Reimbursement is not allowed for screening for herpes simplex virus-1 or herpes simplex virus-2 (HSV-1 and HSV-2, respectively) in asymptomatic patients.

Reimbursement is not allowed for screening for HPV in the following situations:
1. Screening for oncogenic high-risk types, such as HPV-16 and HPV-18, as part of a general sexually transmitted disease (STD) or sexually transmitted infection (STI) screening process or panel for asymptomatic patients; OR
2. As part of diagnosis of anogenital warts; OR
3. Screening for low-risk types of HPV; OR
4. In the general population either as part of a panel of tests or as an individual NAAT to determine HPV status.

Using nucleic acid testing to quantify the following microorganisms is considered to be experimental and investigational:
1. Chlamydia trachomatis
2. Neisseria gonorrhoeae
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3. Herpes Simplex Virus-1
4. Herpes Simplex Virus-2
5. Human Papillomavirus
6. Treponema pallidum

NOTE 1: High-risk for Syphilis (Cantor et al., 2016; CDC, 2017d):
- Sexually active men who have sex with men (MSM)
- Sexually active HIV-positive status
- Having a sexual partner recently diagnosed with an STI
- Exchanging sex for money or drugs
- Individuals in adult correctional facilities

NOTE 2: Signs and Symptoms of a Syphilis Infection (CDC, 2017d)
- Chancre
- Skin rash and/or mucous membrane lesions in mouth, vagina, anus, hands, and feet
- Condyloma lata
- Secondary symptomology can include fever, fatigue, sore throat, swollen lymph nodes, weight loss, muscle aches, headache, and hair loss

NOTE 3: High-risk for Chlamydia and/or Gonorrhea (CDC, 2016a, 2016b; LeFevre, 2014):
- Sexually active men who have sex with men (MSM)
- Sexually active HIV-positive status
- Sexually active women under the age of 25
- Women age 25 or over who have multiple sexual partners
- Having a sexual partner recently diagnosed with an STI
- Previous or concurrent STI
- Exchanging sex for money or drugs

NOTE 4: Signs and Symptoms of a Chlamydia Infection (CDC, 2016a):
- Genital symptoms, including “discharge, burning during urination, unusual sores, or rash”
- Pelvic Inflammatory Disease, including “symptoms of abdominal and/or pelvic pain, along with signs of cervical motion tenderness, and uterine or adnexal tenderness on examination”
- Urethritis
- Pyuria
- Dysuria
- Increase in frequency in urination
- Epididymitis (with or without symptomatic urethritis) in men
- Proctitis
- Sexually acquired chlamydial conjunctivitis

NOTE 5: Signs and Symptoms of Gonorrhea (CDC, 2016b):
- Dysuria
- Urethral infection
- Urethral or vaginal discharge
- Epididymitis (Testicular or scrotal pain)
- Rectal infection symptoms include anal itching, discharge, rectal bleeding, and painful bowel movements

Policy Guidelines

Guidelines and Recommendations

National Comprehensive Cancer Network (NCCN)
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Anal Carcinoma (NCCN, 2018a): HPV, especially high-risk types HPV-16 and HPV-18, are linked to anal carcinoma. The NCCN refers to a study that detected HPV in 84% of anal carcinoma samples and 0% in rectal cancer samples, and they state that “the prevalence of HPV-16/18 to be 72% in patients with invasive anal cancer”. Precursor high-grade anal intraepithelial neoplasia (AIN) “can be identified by cytology, HPV testing, digital rectal examination (DRE), high-resolution anoscopy, and/or biopsy.” They also state that “recent data suggest that HPV- and/or p16-positivity are prognostic for improved OS [overall survival] in patients with anal carcinoma.” For females, the NCCN also recommends a gynecological examination due to the link between HPV and anal carcinoma.

Cervical Cancer (NCCN, 2018b): “Persistent human papillomavirus (HPV) infection is the most important factor in the development of cervical cancer. The incidence of cervical cancer appears to be related to the prevalence of HPV in the population…. Screening methods using HPV testing may increase detection of adenocarcinoma.” The NCCN lists chronic, persistent HPV infection along with persistently abnormal Pap tests as criteria to be considered for women contemplating hysterectomy.

Head and Neck Cancers (NCCN, 2018c): The NCCN in version 2.2018 of the Head and Neck Cancers guidelines now specifically states, “Tumor human papillomavirus (HPV) testing by p16 immunohistochemistry (IHC) required” in their workup for cancer of the oropharynx because the p16 status dictates the treatment options to be considered (per the ORPH-1 workup). This version of the guidelines also includes a page on the “Principles of P16 Testing for HPV-Mediated Oropharyngeal Cancer” where they state the following:

- “P16 expression is highly correlated with HPV status and prognosis and is widely available.”
- “A few HPV testing options are available for use in the clinical setting. Expression of p16 as detected by IHC is a widely available surrogate biomarker that has very good agreement with HPV status as determined by the gold standard of HPV E6/E67 mRNA expression. Other tests include HPV detection through PCR and in situ hybridization (ISH).
- “Sensitivity of IHC staining for p16 and PCR-based assay is high, although specificity is highest for ISH.”
- “Due to variations in sensitivity and specificity values of testing options, multiple methods may be used in combination for HPV detection, but HPV detection through PCR and ISH may provide additional sensitivity for the former and specificity for the latter in the case of an equivocal p16 or unclear clinical scenario.”
- “Sufficient pathologic material for HPV testing can be obtained through FNA.”
- “A small proportion of tumors at non-oropharyngeal sites (eg, paranasal sinus, oral cavity, larynx) are HPV-related. However, given the small proportion and lack of consistent evidence in support of prognostic significance, routine HPV testing or p16 [testing] of non-oropharyngeal cancers is not recommended.”
- “Guidelines for testing are available from the College of American Pathologists.”

The NCCN now lists both HPV and EBV (Epstein-Barr virus) to be tested for Occult Primary cancers.

Penile Cancer (NCCN, 2018d): “Overall, about 45% to 80% of penile cancers are related to HPV, with a strong correlation with types 16 and 18.” Discerning whether a penile cancer lesion is infected with HPV is important for laser ablation therapy as noted in the section titled “Principles of Penile Organ-Sparing Approaches”.

Vulvar Cancer (NCCN, 2018e): “Risk factors for the development of vulvar neoplasia include increasing age, infection with human papillomavirus (HPV), cigarette smoking, inflammatory conditions affecting the vulva, and immunodeficiency…. Usual-type VIN [vulvar intraepithelial neoplasia] was linked to persistent infection with carcinogenic strains of HPV, while differentiated
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VIN was commonly associated with vulvar dermatologic conditions such as lichen sclerosus. In 2015, the ISVVD updated the description to 3 classes of vulvar lesions: 1) low-grade squamous intraepithelial lesion (LSIL) due to flat condyloma or HPV effect; 2) high-grade squamous intraepithelial lesions (HSIL, formerly considered usual-type VIN); and 3) differentiated VIN.” The NCCN notes that 80-90% of HSIL cases have HPV infections and that between 30%-69% of all vulvar cancers are believed to be “attributable to HPV infection”. In the “Diagnosis and Workup” section, they state, “Appropriate patients should receive smoking cessation counseling and HPV testing.”

2014, 2016 U.S. Preventive Services Task Force (USPSTF) (Cantor et al., 2016; Feltner et al., 2016; LeFevre, 2014; Moyer & Force, 2014)

Screening for Chlamydia and Gonorrhea (LeFevre, 2014): The USPSTF recommends (Grade B) to screen for chlamydia and gonorrhea in “sexually active females aged 24 years or younger and in older women who are at increased risk for infection.” They also conclude (an “I” statement) “that the current evidence is insufficient to assess the balance of benefits and harms of screening for chlamydia and gonorrhea in men.” Besides age, “other risk factors for infection include having a new sex partner, more than 1 sex partner, a sex partner with concurrent partners, or a sex partner who has an STI; inconsistent condom use among persons who are not in mutually monogamous relationships; previous or coexisting STI; and exchanging sex for money or drugs.” They clearly state that both chlamydia and gonorrhea should be tested using NAATs.

Screening for Oral Cancer (Moyer & Force, 2014): Given the link between HPV infection and oral cancers, the USPSTF released their findings concerning the screening of asymptomatic patients. “The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of screening for oral cancer in asymptomatic adults.” They also state the following: “Although there is interest in screening for oral HPV infection, medical and dental organizations do not recommend it. Currently, no screening test for oral HPV infection has been approved by the U.S. Food and Drug Administration (FDA). Evaluating the accuracy of tests that detect oral HPV infection is a potentially promising area of research.”

Serological Screening for Genital Herpes (Feltner et al., 2016): HSV-2 is the primary causative agent of genital herpes, and HSV-2 infection during pregnancy can cause fetal morbidity and mortality. Due to its prevalence in the U.S. and the possible consequences of a genital herpes infection, the USPSTF researched the validity and practicality of HSV-2 screening in asymptomatic patients. They conclude that “serologic screening for genital herpes is associated with a high rate of false-positive test results and potential psychosocial harms. Evidence from RCTs [randomized clinical trials] does not establish whether preventive antiviral medication for asymptomatic HSV-2 infection has benefit.”

Screening for Syphilis (Cantor et al., 2016): Previously, in 2004, the USPSTF “recommended routine screening for syphilis in asymptomatic men and nonpregnant women at increased risk of infection (A recommendation) and recommended against routine screening for those not at increased risk (D recommendation).” The previous study did not address the frequency of repeat testing. The current 2016 study adds to the previous recommendations. “Screening HIV-positive men or MSM for syphilis every 3-months is associated with improved syphilis detection. Treponemal or nontreponemal tests are accurate screening tests but require confirmation. Research is needed on the effect of screening on clinical outcomes; effective screening strategies, including reverse sequence screening, in various patient populations; and harms of screening.”


Diseases Characterized by Genital, Anal, or Perianal Ulcers: “…all persons who have genital, anal, or perianal ulcers should be evaluated;… Specific evaluation of genital, anal, or perianal ulcers
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includes 1) syphilis serology, darkfield examination, or PCR testing if available; 2) culture or PCR testing for genital herpes; and 3) serologic testing for type-specific HSV antibody.” Later, in the section specifically focused on genital HSV infections, the CDC states, “…the clinical diagnosis of genital herpes should be confirmed by type-specific laboratory testing. Both type-specific virologic and type-specific serologic tests for HSV should be available in clinical settings that provide care to persons with or at risk for STDs.” They stress that the patient’s prognosis does depend on the type of HSV infection, especially since “recurrences and subclinical shedding are much more frequent for genital HSV-2 infection than for genital HSV-1 infection.” Regarding testing, “cell culture and PCR are the preferred HSV tests for persons who seek medical treatment for genital ulcers or other mucocutaneous lesions (Workowski & Bolan, 2015).” NAATs are more sensitive than viral culture testing. On the CDC’s detailed fact sheet about genital herpes, they state, “Routine serologic HSV screening of pregnant women is not recommended (CDC, 2017a).”

Syphilis: “Darkfield examinations and tests to detect T. pallidum directly from lesion exudate or tissue are the definitive methods for diagnosing early syphilis. Although no T. pallidum detection tests are commercially available, some laboratories provide locally developed and validated PCR tests for the detection of T. pallidum DNA. A presumptive diagnosis of syphilis requires use of two tests: a nontreponemal test (i.e., Venereal Disease Research Laboratory [VDRL] or Rapid Plasma Reagin [RPR]) and a treponemal test (i.e., fluorescent treponemal antibody absorbed [FTA-ABS] tests, the T. pallidum passive particle agglutination [TP-PA] assay, various enzyme immunoassays [EIAs], chemiluminescence immunoassays, immunoblots, or rapid treponemal assays)…Use of only one type of serologic test is insufficient for diagnosis and can result in false-negative results in persons tested during primary syphilis and false-positive results in persons without syphilis.” If a patient shows signs and symptoms of neurosyphilis, including “cranial nerve dysfunction, auditory or ophthalmic abnormalities, meningitis, stroke, acute or chronic altered mental status, and loss of vibration sense”, further testing is required-CSF cell count or protein and a reactive CSF-VDRL (Workowski & Bolan, 2015).

Chlamydial Infections: “Annual screening of all sexually active women aged <25 years is recommended, as is screening of older women at increased risk for infection (e.g., those who have a new sex partner, more than one sex partner, a sex partner with concurrent partners, or a sex partner who has a sexually transmitted infection…the screening of sexually active young men should be considered in clinical settings with a high prevalence of chlamydia (e.g., adolescent clinics, correctional facilities, and STD clinics) or in populations with high burden of infection (e.g., MSM) (Workowski & Bolan, 2015).” NAAT testing of first-catch urine or swab specimens is recommended. In the diagnostic considerations section of Chlamydial Infections, the CDC does not address any differences between symptomatic or asymptomatic screening, and they do not mention any specific diagnostic considerations of patients showing signs or symptoms of a chlamydial infection. In the 2014 CDC guide for laboratory testing of chlamydia and gonorrhea, they, too, recommend using NAATs and not the older nonculture or non-NAAT testing methods. “Older nonculture tests and non-NAATs have inferior sensitivity and specificity characteristics and no longer are recommended (Papp et al., 2014).” They do recommend the use of NAATs for extragenital infections, even though such tests have not been FDA-approved, because of their “increased sensitivity, ease of specimen transport and processing” provided that such testing meet CLIA regulatory requirements and any local or state regulations (Papp et al., 2014).

Gonococcal Infections: The CDC recommendation concerning gonococcal screening is similar to that of chlamydia—women aged <25 years and older women and men in high-risk categories. “Screening for gonorrhea in men and older women who are at low risk for infection is not recommended.” NAAT allows for best testing of genitourinary infection. However, “culture is available for detection of rectal, oropharyngeal, and conjunctival gonococcal infection, but NAAT is not FDA-cleared for use with these specimens.” NAAT testing of rectal and/or oropharyngeal swab specimens can be performed in certain laboratories that have met CLIA requirements even though the testing methodology has not been FDA-approved. Symptomatic men can have testing of urethral secretions performed; however, a negative Gram stain cannot rule out a gonococcal infection, but a
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positive Gram stain “can be considered diagnostic for infection (Workowski & Bolan, 2015).” Follow-up testing post-treatment for urogenital or rectal gonorrhea is not necessary, but NAAT testing should be performed 14 days after treatment for pharyngeal gonorrhea. Vaginitis is the most common symptom of infection in preadolescent girls. In the 2014 laboratory guide, the CDC states that “N. gonorrhoeae culture capacity is still needed for evaluating suspected cases of treatment failure and monitoring antimicrobial susceptibility.” They also state, “C. trachomatis and N. gonorrhoeae culture capacity might still be needed in instances of child sexual assault in boys and extragenital infections in girls (Papp et al., 2014).”

Human Papillomavirus Infections: Even though testing for oncogenic HPV variants exists, the CDC states, “These tests should not be used for male partners of women with HPV or women aged <25 years, for diagnosis of genital warts, or as a general STD test.” For patients showing signs and symptoms of anogenital warts, the CDC states, “HPV testing is not recommended for anogenital wart diagnosis, because test results are not confirmatory and do not guide genital wart management.” For cervical screening, “for women aged ≥30 years, screening can include several FDA-approved oncogenic or high risk HPV (HR-HPV) tests.” Between the ages of 30 and 65, women should be screened every three years (if only doing a Pap test) or every five years if co-testing with a Pap test and an HR-HPV test (Workowski & Bolan, 2015).

2012-2017 International Union against Sexually Transmitted Infections (IUSTI) (Bignell & Unemo, 2013; de Vries, Zingoni, Kreuter, Moi, & White, 2015; Janier et al., 2014; Lacey, Woodhall, Wikstrom, & Ross, 2013; Lanjouw et al., 2016; Patel et al., 2017)

2012 European guideline for the management of anogenital warts (Lacey et al., 2013): “HPV typing of anogenital warts does not add information of clinical use, and is not recommended. Some practitioners use the acetic acid test to diagnose sub-clinical HPV lesions; its place in diagnosis and management remains controversial.”

2012 European guideline on the diagnosis and treatment of gonorrhea in adults (Bignell & Unemo, 2013): NAATs, bacterial culture, and microscopy can be used in the diagnosis of uncomplicated gonorrhea. “No test offers 100% sensitivity and specificity.” They do state (with a grade C recommendation) that microscopy can be used for testing symptomatic men, but it is not recommended for use in asymptomatic men, rectal infection, or endocervical infection due to low sensitivity. Culture testing is the only method to use for determining antimicrobial susceptibility, but culture testing is not as sensitive as NAAT. The IUSTI includes the following list for “Indications for testing” (grade C recommendation):

- Symptoms or signs of urethral discharge in men;
- Vaginal discharge with risk factor for STI (age <30 years, new sexual partner);
- Mucopurulent cervicitis;
- Persons diagnosed with any other STI;
- Sexual partner of persons with an STI or PID;
- Acute epididymo-orchitis in a male aged <40 years;
- Acute pelvic inflammatory disease;
- When screening young adults (<25 years of age) for sexually transmitted infections;
- When screening individuals with new or multiple recent sexual partners;
- Purulent conjunctivitis in a neonate or adult;
- Mother of a newborn with ophthalmia neonatorum.

2013 European guideline on the management of lymphogranuloma venereum (de Vries et al., 2015): Lymphogranuloma venereum (LGV) is a condition caused by chlamydia. The clinical features can vary, depending on the site of inoculation (genital versus rectum) and can include hemorrhagic proctitis, lymphadenopathy, papule or pustule formation, and buboes. “Constitutional symptoms, such as low-grade fever, chills, malaise, myalgias and arthralgias may present during the second
stage of disease. In addition, systemic spread of C. trachomatis occasionally results in arthritis, pneumonitis or (peri)hepatitis. Rare systemic complications include cardiac involvement, aseptic meningitis and ocular inflammatory disease…. The diagnosis of LGV is confirmed by the detection of biovar-specific C. trachomatis DNA in (i) ulcer material from primary anogenital lesions, (ii) rectal specimens (in suspected cases of anorectal LGV); anorectal swabs are preferably collected from the mucosal lining under proctoscopic vision, alternatively a blind anorectal swab can suffice, or (iii) bubo aspirates (in suspected cases of inguinal LGV); historically LGV has been difficult to isolate from bubo aspirates in culture studies” (Grade C). The IUSTI states that modern labs use a two-step procedure consisting of (1) the use of commercially available NAAT (even though these “are not approved for extragenital sites, a large body of literature supports [their] use…for detection of rectal chlamydia infections”), and (2) the use of LGV biovar-specific DNA NAAT (Grade B recommendations). They do recommend “to screen all MSM who report receptive anal sexual practices in the previous 6 months for anorectal” chlamydial infections. With a Grade B recommendation, they state that “a test of cure for LGV is not considered necessary if the recommended 21 day course of doxycycline is completed.”

2014 European guideline on the management of syphilis (Janier et al., 2014): The three stages (primary, secondary, and tertiary) can be overlapping. Primary syphilis begins with appearance of an ulcer (also known as a chancre), usually in the anogenital region with regional lymphadenopathy. “Any anogenital ulcer should be considered syphilitic unless proven otherwise.” The secondary stage is characterized by “multisystem involvement due to bacteraemia, within the first year but may recur up into the second year after infection” and can include skin rash, generalized lymphadenopathy, arthritis, hepatitis, splenomegaly, and kidney dysfunction. Early neurosyphilis can occur in secondary syphilis and can include “meningitis, cranial nerve palsies, auricular and ophtalmic abnormalities (such as uveitis, retinitis, otitis and papillary oedema).” They list the following as conditions of tertiary syphilis:

- “Gummatous syphilis: nodules/plaques or ulcers (skin, mucosa, visceral)”
- “Late neurosyphilis encompasses meningitis, cranial nerve dysfunction, meningovascular syphilis (stroke, myelitis) and parenchymatous neurosyphilis (general paresis, tabes dorsalis)”
- “Cardiovascular syphilis: aortic regurgitation, stenosis of coronary ostia, aortic aneurysm (mainly thoracic)”

They note that darkfield examination (DFE) can give immediate results but is subjective and not highly accurate. They state that PCR-based methods are preferred for “oral and other lesions where contamination with commensal treponemes is likely; can be performed in tissues, cerebrospinal fluid (CSF), blood (although insensitive in the latter), etc. There is no internationally approved PCR for T. pallidum and accordingly, it is crucial to select a strictly validated method and always use it with appropriate quality controls.” Later, “immunohistochemistry using a polyclonal antibody against T. pallidum can be efficient to identify treponemes in skin, mucosal and tissue lesions.” The IUSTI clearly states, “STS [serological tests for syphilis] provide a presumptive diagnosis of syphilis.” It should be noted that STS cannot differentiate between the different types of treponematoses (i.e. venereal syphilis versus non-syphilitic treponemes). “A person with positive STS should be investigated and treated as for syphilis as a precautionary measure unless previously adequately treated syphilis is documented.” Similar to the CDC recommendations, the IUSTI recommends using a two-test approach in diagnosing syphilis where both a non-treponemal test and a treponemal test are administered to the patient.

2015 European guideline on the management of Chlamydia trachomatis infections (Lanjouw et al., 2016): “Appropriate testing of symptomatic and asymptomatic sexually active individual is recommended to identify and treat the C. trachomatis infections.” With a Grade A recommendation, they recommend using NAATs that identify specific nucleic acid, either DNA or RNA) of C. trachomatis “due to their superior sensitivity, specificity, and speed”.

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The following list contains the indications for laboratory testing as recommended by the IUSTI with a Grade C recommendation (Lanjouw et al., 2016):

**Indications for laboratory testing (Level of evidence IV; Grade C recommendation)**

- Risk factor(s) for *C. trachomatis* infection and/or other STI (age <25 years, new sexual contact in the last year, more than one partner in the last year);
- Symptoms or signs of urethritis in men;
- Cervical or vaginal discharge with risk factor for STI;
- Acute epididymo-orchitis in a male aged <40 years or with risk factors for STI;
- Acute pelvic pain and/or symptoms or signs of PID;
- Proctitis/protocolitis according to risk;
- Purulent conjunctivitis in a neonate or adult;
- Atypical neonatal pneumonia;
- Persons diagnosed with other STI;
- Sexual contact of persons with an STI or PID;
- Termination of pregnancy;
- Any intrauterine interventions or manipulations.

2017 European guidelines for the management of genital herpes (Patel et al., 2017):

The principle change to the IUSTI guidelines in this recent version is that “HSV DNA detection rather than cell culture is now the gold standard for diagnosis.” With a grade C recommendation, “serological testing is not routinely recommended in asymptomatic patients.” They note that there are specific groups where it may be useful, including pregnant women, sexual partners of HSV-positive people, those with a history of recurrent or atypical genital disease, and those with first-episode genital herpes whose differentiation may aid in counseling and management (because seroconversion happens typically at 90 days post-infection).

2014 Male Training Center for Family Planning & Reproductive Health (MTC), Office of Population Affairs, Department of Health and Human Services (Marcell & Health, 2014)

In general, the MTC recommends at least annual testing for chlamydia, gonorrhea, syphilis, HIV/AIDS, and Hepatitis C for anyone in an at-risk population, including MSM. For syphilis, certain populations require testing at 3-6 month intervals, including those who exchange sex for drugs, commercial sex workers, and young MSM.

The MTC does not recommend screening for pharyngeal chlamydia infections. They do recommend a follow-up test three months after initial positive chlamydia test. They recommend using a urine-based NAAT for chlamydia for at-risk male populations under the age of 25, which include MSM, patients at STI clinics, and military personnel (under the age of 30), and inmates entering jails or detention centers (under the age of 30). Men who have had receptive anal intercourse in the preceding year should have a NAAT performed on a rectal swab to check for rectal chlamydial infection.

The MTC recommends using NAAT for gonorrhea testing of at-risk male adolescents and adults, including MSM. “Males with gonorrhea infection should be re-screened for reinfection at 3 months.” Annual exams for MSM include screening for urethral infections, pharyngeal infections using NAAT for those “who have had receptive oral intercourse” during the preceding year, and rectal infections using NAAT of rectal swabs for those “who have had receptive anal intercourse”
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during the preceding year. “More frequent STD screening (i.e., at 3-6 month intervals) is indicated for MSM who have multiple or anonymous partners.”

**Canadian Guidelines on Sexually Transmitted Infections (Chernesky, 2018)**

“For anal warts, no specific testing is recommended to verify the presence or type of HPV as this will not alter management. Anal Pap and/or HPV testing may be of value to identify precancerous anal intraepithelial neoplasia (AIN) in high-risk groups... Although no products are currently licensed for these [pharyngeal] specimens in Canada, validated NAATs can be used to detect oropharyngeal N. gonorrhoeae and C. trachomatis infections. Confirmation of positives with culture or a second NAAT should be performed.” NAAT can be performed on first-void urine samples from male patients or vaginal swabs or urine samples obtained from female patients. Since NAAT allows for the testing of antimicrobial susceptibility in gonorrheal infections, “depending on the clinical situation, consideration should be given to using both culture and NAAT, especially in symptomatic patients.”

For oral lesions of suspected HSV, they recommend using NAAT or to obtain fluid for culture. “NAATs approach sensitivities and specificities of 100%, with rapid turn-around of results.” For syphilis, “NAATs can be used as a non-serological method for identifying T. pallidum in mucosa and skin involve. They are very sensitive and specific. When genital lesions characteristic of early syphilis are present, clear serous fluid may be collected for dark-field microscopy, enabling observation of morphology and movement of the spirochetes for the detection of T. pallidum (not reliable for oral or rectal lesions).”

**2014 American Academy of Pediatrics (AAP) (Murray et al., 2014)**

*Chlamydia:* The AAP recommends annual screening for sexually active females 25 years old or younger. They also recommend annual urethral and rectal chlamydia screenings for sexually active MSM, but more frequent screening (every 3-6 months) for those who are in a higher risk category, such as multiple partners, sex-for-drugs, and so on. Anyone who has been exposed to chlamydia in the past 60 days should also be tested. “Consider screening sexually active males annually in settings with high prevalence rates, such as jails or juvenile corrections facilities, national job training programs, STD clinics, high school clinics, and adolescent clinics for patients who have a history of multiple partners.” Anyone who has tested positive for chlamydia should be retested three months after receiving treatment.

*Gonorrhea:* Like chlamydia, the AAP recommends annual screening for sexually active females under the age of 25. “Routinely screen sexually active adolescent and young adults MSM for pharyngeal, rectal, and urethral gonorrhea infection annually if engaging in receptive oral or anal intercourse or insertive intercourse, respectively.” Again, like chlamydial infections, those participating in higher risk activities should be tested every 3-6 months. Anyone who has been exposed to gonorrhea in the past 60 days should also be tested. Finally, the screening recommendations for other males are similar to the recommendations concerning chlamydial infections. Anyone who has tested positive for gonorrhea should be retested three months after receiving treatment.

*Syphilis:* “The routine screening of nonpregnant, heterosexual adolescents is not recommended. However, screening is recommended for all sexually active adolescent and young adults MSM annually or every 3 to 6 months if high risk and can be considered for youth whose behaviors put them at higher risk.”

**2016 National Institute for Health and Care Excellence (NICE) (Cancer, 2016)**

NICE released their guidelines concerning cancer of the upper aerodigestive tract in 2016 (with updates in 2018 online). Recommendation 1.6.1: “Test all squamous cell carcinomas of the
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oropharynx using p16 immunohistochemistry. Regard the p16 test result as positive only if there is strong nuclear and cytoplasmic staining in more than 70% of tumour cells.” In Recommendation 1.6.2: “Consider high-risk HPV DNA or RNA in-situ hybridisation in all p16-positive cancers of the oropharynx to confirm HPV status.” In explaining their recommendations, NICE states, “HPV testing is currently recommended in cancer of the oropharynx because it has significant prognostic implication.”

2013 National Health Care for the Homeless Council (Audain et al., 2013)

The National Health Care for the Homeless Council recommends HPV screening along with cervical screening every 6 months for HIV-positive, homeless women. This can be decreased to an annual screening once two consecutive normal Pap smears occur. They also recommend annual gonococcal and chlamydial tests for all HIV-positive patients. “Consider anal Pap smear and tests for rectal N. gonorrhoeae and C. trachomatis infection at baseline and annually in MSM and any patient with history of anogenital condylomata.”

2018 Canadian Paediatric Society (CPS) (Allen, MacDonald, & Canadian Paediatric Society, 2017; Robinson & Canadian Paediatric Society, 2018)

The 2018 update to the CPS practice point titled Congenital syphilis: No longer just of historical interest included the following:

“Syphilis serology should routinely be performed at the first prenatal visit, followed by appropriate maternal counselling and therapy, if reactive. Rescreening should occur at 28 to 32 weeks’ gestation and at delivery in high-risk women, including women who originate from a country with a high prevalence of syphilis. Routine rescreening should also be considered in areas experiencing outbreaks of heterosexual syphilis. If syphilis serology was not performed during pregnancy, newborns should not be discharged from hospital until maternal serology has been drawn and follow-up of results has been arranged. If the cause is not known for a hydropic or stillbirth newborn, the mother should be screened for syphilis postpartum (Robinson & Canadian Paediatric Society, 2018).”

The CPS practice point Sexually transmitted infections in adolescents: Maximizing opportunities for optimal care (Allen et al., 2017) included the following table concerning what screening tests should be used for each condition:

<table>
<thead>
<tr>
<th>Infection</th>
<th>Screening tests/samples</th>
<th>Follow-up testing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chlamydia</td>
<td>NAAT is the most sensitive and specific test. Can be performed on urine, urethral swabs, vaginal or cervical</td>
<td>Test-of-cure 3 to 4 weeks after treatment:</td>
</tr>
<tr>
<td></td>
<td>swabs*</td>
<td>If compliance is uncertain</td>
</tr>
<tr>
<td></td>
<td>A culture of cervical or urethral specimen is the test of choice for medico-legal cases (eg, child abuse).</td>
<td>If second-line or alternative treatment was used</td>
</tr>
<tr>
<td></td>
<td>Confirmation by NAAT using a different set of primers or DNA sequencing may be used</td>
<td>If re-exposure risk is high</td>
</tr>
<tr>
<td></td>
<td>Serology should not be used for diagnosis</td>
<td>In the pregnant adolescent</td>
</tr>
<tr>
<td></td>
<td></td>
<td>In prepubertal children</td>
</tr>
<tr>
<td>Syphilis</td>
<td>Serology remains the usual diagnostic test unless the patient has lesions compatible with syphilis</td>
<td>Follow-up testing depends on the nature of infection, as follows:</td>
</tr>
<tr>
<td></td>
<td>Treponemal-specific EIA is a more sensitive screening test than nontreponemal tests; however, testing</td>
<td>Primary, secondary, early latent infection: Repeat serology at 1, 3, 6 and</td>
</tr>
</tbody>
</table>
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algorithms vary across jurisdictions
If treponemal-specific assay is positive, a second treponemal test is usually required

Gonorrhea NAAT can be used to detect gonorrhea from urine, and urethral, vaginal and cervical swabs in symptomatic and asymptomatic individuals*

NAAT is the only method available in some jurisdictions
Culture allows for antimicrobial susceptibility testing and should be performed if a patient does not promptly respond to therapy, given concerns regarding antimicrobial resistance
Cultures should be submitted for asymptomatic or symptomatic MSM, who have an increased incidence of antibiotic resistance
For rectal and pharyngeal testing, discuss preferred specimens with the testing laboratory
Culture preferred for throat specimens
For medico-legal purposes, a positive result obtained from NAATs should be confirmed using culture or a different set of primers, or by DNA sequencing techniques

*Discuss specimen selection to ensure that the NAAT is validated for the specimen to be collected and the patient being tested. For example, NAAT testing has not been validated for children ≤12 years of age and for medico-legal specimens.

2013 – 2015 British Association for Sexual Health and HIV (BASHH) (Bignell & Fitzgerald, 2011; Kingston et al., 2016; Nwokolo et al., 2016; Patel et al., 2015; White, O'Farrell, & Daniels, 2013)

2013 UK National Guideline for the management of lymphogranuloma venereum (White et al., 2013): “Commercial molecular diagnostic techniques to detect C. trachomatis remain the primary test of choice, with referral of C. trachomatis-positive specimens for molecular tests to confirm the presence of LGV-associated DNA.” Testing should be performed on anyone exhibiting symptoms of an LGV infection, including hemorrhagic proctitis, primary lesions, suspected LGV-associated pharyngitis, secondary lesions, buboes, lymphadenitis, and/or lymphadenopathy. Main diagnostic techniques include using either NAATs, “culture on cycloheximide-treated McCoy cells of material from suspected LGV lesions”, or serology testing. “Serology cannot necessarily distinguish past from current LGV infection, which might prove restrictive given the high number of recurrent LGV infections now seen in MSM.”

2014 UK National Guideline for the management of anogenital herpes (Patel et al., 2015): The clinical signs and symptoms of an HSV infection can include “painful ulceration, dysuria, vaginal or urethral discharge” as well as systemic symptoms of fever and myalgia. Other signs can include bilateral lymphadenitis—although, alternating sides can occur in subsequent episodes—and proctitis. With a Grade C recommendation, “The confirmation and typing of the infection and its type, by direct detection of HSV in genital lesions, are essential for diagnosis, prognosis, counselling, and management.” BASHH gives an “A” recommendation of directly testing swabs from either anogenital lesions or the rectal mucosa in suspected proctitis. They recommend with a “B” rating that virus typing be performed to differentiate HSV-1 from HSV-2 in newly diagnosed cases of genital herpes. NAATs are the preferred testing method (grade “A” recommendation) since HSV culture tests can miss around 30% of PCR-positive samples.

2015 UK National Guideline for the management of infection with Chlamydia trachomatis (Nwokolo et al., 2016): “Testing for genital and extra-genital chlamydia should be performed using NAATs (Grade B).” MSM who test positive for both HIV and chlamydia should be tested for LGV even if asymptomatic for the latter (Grade B). They give a Grade B recommendation for LGV
Diagnostic Testing of Sexually Transmitted Infections AHS – G2157

testing in patients presenting with proctitis and a Grade C recommendation for treating both sexes presenting with proctitis the same.

2015 UK National Guidelines on the management of syphilis (Kingston et al., 2016): They recommend (2A) “where appropriate expertise and equipment are available, perform dark ground microscopy on possible chancres” and (1A) that “T. pallidum testing by PCR is appropriate on lesions where the organism may be expected to be located.” Within the section on serology, they recommend (1B) that “An EIA/CLIA, preferably detecting both IgM and IgG IS the screening test of choice”; “positive screening tests should be confirmed with a different treponemal test (not the FTA-abs) and a second specimen for confirmatory testing obtained” (1B); “a quantitative RPR or VDRL should be performed when screening tests are positive” (1A); and (1B) repeat testing for syphilis at 6 and 12 weeks if an isolated episode and “at two weeks after possible chancres that are dark-ground and/or PCR negative are observed”.

<table>
<thead>
<tr>
<th>Year &amp; Society</th>
<th>Condition</th>
<th>Microorganism</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>2018 NCCN</td>
<td>Anal Carcinoma</td>
<td>HPV</td>
<td>HPV linked to anal cancers and HPV positivity linked to positive OS</td>
</tr>
<tr>
<td>2018 NCCN</td>
<td>Cervical Cancer</td>
<td>HPV</td>
<td>Overwhelming evidence of link between HPV and cervical cancer; chronic HPV infection status used in aiding treatment/surgical options</td>
</tr>
<tr>
<td>2018 NCCN</td>
<td>Oropharyngeal Cancer</td>
<td>HPV</td>
<td>Requires HPV p16 testing by IHC; HPV status is imperative in determining therapy</td>
</tr>
<tr>
<td>2018 NCCN</td>
<td>Penile Cancer</td>
<td>HPV</td>
<td>HPV linked to penile cancer; HPV status of lesions important for determining therapy</td>
</tr>
<tr>
<td>2018 NCCN</td>
<td>Vulvar Cancer (Squamous Cell Carcinoma)</td>
<td>HPV</td>
<td>HPV linked to vulvar cancer, especially HSIL; recommends HPV testing for “appropriate patients”</td>
</tr>
<tr>
<td>2014 USPSTF</td>
<td>NA</td>
<td>Chlamydia, Gonorrhea</td>
<td>Testing in sexually active women age 24 or younger and older women of at-risk populations; insufficient evidence concerning routinely screening in general population of males</td>
</tr>
<tr>
<td>2014 USPSTF</td>
<td>Oropharyngeal Cancer</td>
<td>HPV</td>
<td>Insufficient evidence to assess testing for HPV in cases of asymptomatic oropharyngeal cancer</td>
</tr>
<tr>
<td>2016 USPSTF</td>
<td>Asymptomatic Genital Herpes</td>
<td>HSV-2</td>
<td>Do not recommend testing asymptomatic patients for HSV-2</td>
</tr>
<tr>
<td>2016 USPSTF</td>
<td>NA</td>
<td>Syphilis</td>
<td>Grade A recommendation for screening asymptomatic patients of HIGH RISK categories but they do NOT recommend screening in asymptomatic patients not in high risk categories; recommend screening HIV-positive men and MSM every three months</td>
</tr>
</tbody>
</table>
## Diagnostic Testing of Sexually Transmitted Infections AHS – G2157

<table>
<thead>
<tr>
<th>Year</th>
<th>Agency/RP</th>
<th>Condition/Specimen Type</th>
<th>Microorganism</th>
<th>Test Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015 CDC</td>
<td>Genital, Anal, or Perianal Ulcers</td>
<td>Syphilis, HSV</td>
<td></td>
<td>Recommends syphilis serology, darkfield exam, or PCR testing if possible; culture or PCR for genital herpes; serologic testing for type-specific HSV antibody</td>
</tr>
<tr>
<td>2015 CDC</td>
<td>NA</td>
<td>Syphilis</td>
<td></td>
<td>Darkfield examination of exudate can be used for early diagnosis; presumptive diagnosis requires use of two tests—both a treponemal test and a non-treponemal test; any signs of CNS infection require additional testing</td>
</tr>
<tr>
<td>2015 CDC</td>
<td>NA</td>
<td>Chlamydia</td>
<td></td>
<td>Testing of women under age of 25 as well as older women and men if they fall in a high-risk category; do NOT recommend testing of asymptomatic men and older women</td>
</tr>
<tr>
<td>2015 CDC</td>
<td>NA</td>
<td>Gonorrhea</td>
<td></td>
<td>Testing of women under age of 25 as well as older women and men if they fall in a high-risk category; do NOT recommend testing of asymptomatic men and older women; men showing signs of urethral gonococcal infection should be tested</td>
</tr>
<tr>
<td>2015 CDC</td>
<td>NA</td>
<td>HPV</td>
<td></td>
<td>Recommends against using oncogenic HPV testing for asymptomatic men, women aged 25 and over, or for general STD testing</td>
</tr>
<tr>
<td>2015 CDC</td>
<td>Anogenital Warts</td>
<td>HPV</td>
<td></td>
<td>“HPV testing is not recommended for anogenital wart diagnosis, because test results are not confirmatory and do not guide genital wart management.”</td>
</tr>
<tr>
<td>2015 CDC</td>
<td>Cervical Screening</td>
<td>HPV</td>
<td></td>
<td>For women aged 30 or older, HPV testing can be part of cervical screening. For women ages 30-65, if co-testing Pap test and HR-HPV, then frequency is every 5 years…if only doing a Pap test, the frequency is every 3 years</td>
</tr>
<tr>
<td>2012 IUSTI (published in 2013)</td>
<td>Anogenital Warts</td>
<td>HPV</td>
<td></td>
<td>Do not recommend HPV testing for symptomatic anogenital warts since it adds no information for clinical use.</td>
</tr>
<tr>
<td>2012 IUSTI (published in 2013)</td>
<td>NA</td>
<td>Gonorrhea</td>
<td></td>
<td>Culture testing is only method to determine antimicrobial susceptibility, but NAAT testing is more sensitive. Includes list of symptoms for testing.</td>
</tr>
<tr>
<td>2013 IUSTI (published in 2015)</td>
<td>Lymphogranuloma venereum</td>
<td>Chlamydia</td>
<td></td>
<td>Recommended two-tier testing for those with signs and symptoms of LGV; also testing for MSM participating in receptive anal intercourse within past 6 months</td>
</tr>
<tr>
<td>2014 IUSTI</td>
<td>NA</td>
<td>Syphilis</td>
<td></td>
<td>Like the CDC, they recommend a two-test method for diagnosing syphilis (one non-treponema test and one treponema test).</td>
</tr>
<tr>
<td>Year</td>
<td>Group</td>
<td>Infection(s)</td>
<td>Test Method and Recommendations</td>
<td></td>
</tr>
<tr>
<td>-----------------------</td>
<td>------------------------</td>
<td>-----------------------</td>
<td>-------------------------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>2015 IUSTI (published in 2016)</td>
<td>Genital herpes</td>
<td>HSV</td>
<td>Typically, does not recommend testing in asymptomatic patients; HSV DNA detection now replaces culture as gold standard</td>
<td></td>
</tr>
<tr>
<td>2014 MTC</td>
<td>NA</td>
<td>Chlamydia</td>
<td>Do not recommend pharyngeal screenings. Do recommend NAAT of at-risk groups with a 3-month follow-up test for patients who tested positive</td>
<td></td>
</tr>
<tr>
<td>2014 MTC</td>
<td>NA</td>
<td>Gonorrhea</td>
<td>Do recommend annual NAAT of at-risk groups with a 3-month follow-up test for patients who tested positive; more frequent testing in certain MSM populations</td>
<td></td>
</tr>
<tr>
<td>2014 MTC</td>
<td>NA</td>
<td>Syphilis</td>
<td>Do recommend annual testing of at-risk groups with 3-6 month testing of certain populations (commercial sex workers, inmates of correctional facilities, persons who exchange sex for drugs, and so on)</td>
<td></td>
</tr>
<tr>
<td>2018 Canadian Guidelines on STIs</td>
<td>NA</td>
<td>Chlamydia, Syphilis, Gonorrhea, HSV, and HPV</td>
<td>NAATs are more specific and sensitive than culture testing when available. For gonorrheal infections, only culture test can be used for antimicrobial susceptibility in gonorrhea.</td>
<td></td>
</tr>
<tr>
<td>2014 AAP</td>
<td>Adolescents &amp; young adults</td>
<td>Chlamydia, Gonorrhea</td>
<td>All sexually active young women (under the age of 25) and MSM should have annual screenings. For those at higher risk, they should be screened every 3-6 months. Anyone who tests positive should be retested 3 months after receiving treatment.</td>
<td></td>
</tr>
<tr>
<td>2014 AAP</td>
<td>Adolescents &amp; young adults</td>
<td>Syphilis</td>
<td>Do NOT recommend routine screening except for sexually active young MSM.</td>
<td></td>
</tr>
<tr>
<td>2016 NICE</td>
<td>Oropharyngeal Cancers</td>
<td>HPV</td>
<td>Test all carcinomas of the oropharynx using p16 IHC; consider using high-risk HPV DNA/RNA in situ hybridization in all p16-positive cancers</td>
<td></td>
</tr>
<tr>
<td>2013 National Health Care for the Homeless Council</td>
<td>HIV/AIDS</td>
<td>HPV</td>
<td>For women, every 6 months along with Pap for HIV-positive patients; decrease to annual after two consecutive normal Pap tests</td>
<td></td>
</tr>
<tr>
<td>2013 National Health Care for the Homeless Council</td>
<td>HIV/AIDS</td>
<td>Chlamydia, Gonorrhea</td>
<td>Annual testing of all HIV-positive patients; consider anal Pap smear and rectal tests for MSM annually</td>
<td></td>
</tr>
<tr>
<td>2013 National Health Care for HIV/AIDS with ano genital condylomata</td>
<td>Chlamydia, Gonorrhea</td>
<td></td>
<td>Consider annual anal Pap smear and rectal tests for both chlamydia and GC</td>
<td></td>
</tr>
</tbody>
</table>
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<table>
<thead>
<tr>
<th>Date</th>
<th>Population</th>
<th>Condition</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>2018 CPS</td>
<td>Pregnant women</td>
<td>Syphilis</td>
<td>Testing at first prenatal visit as well as 28-32 weeks; if not tested during pregnancy, child does not leave the hospital without being tested</td>
</tr>
<tr>
<td>2017 CPS</td>
<td>Adolescents/young adults</td>
<td>Chlamydia, Syphilis, Gonorrhea</td>
<td>See detailed testing and frequency in table within the guidelines above</td>
</tr>
<tr>
<td>2015 BASHH</td>
<td>NA</td>
<td>Syphilis</td>
<td>Dark-field microscopy or PCR tests can be performed. For serology, EIA/CLIA is the screening test of choice (preferably where both IgM and IgG are detected). Positive tests must be followed by a quantitative RPR or VDRL.</td>
</tr>
<tr>
<td>2013 BASHH</td>
<td>Suspected LGV</td>
<td>Chlamydia</td>
<td>Testing should use either NAAT, culture testing, or serology; however, the latter cannot distinguish current from past infections.</td>
</tr>
<tr>
<td>2014 BASHH</td>
<td>Anogenital herpes</td>
<td>HSV</td>
<td>NAAT is preferred over other forms of testing (“A” grade). Differentiation of virus type should be determined on new cases of genital herpes (“B” grade).</td>
</tr>
<tr>
<td>2015 BASHH</td>
<td>NA</td>
<td>Chlamydia</td>
<td>Test for chlamydia using NAATs. Both sexes presenting with proctitis should be treated the same with respect to LGV testing. HIV-positive men with chlamydia should also be tested for LGV, even if asymptomatic.</td>
</tr>
</tbody>
</table>

Abbreviations: CLIA = chemiluminescent assay; EIA = enzyme immunoassay; GC = gonococcal; HPV = human papillomavirus; HR-HPV = high risk or oncogenic HPV testing; HSIL = high-grade squamous intraepithelial lesions; HSV = herpes simplex virus; IHC = immunohistochemistry; LGV = lymphogranuloma venereum; MSM = men having sex with men; NA = not applicable; NAAT = nucleic acid amplification testing; OS = overall survival; RPR = rapid plasma reagin test; VDRL = Venereal Diseases Research Laboratory carbon antigen test

### Billing/Coding/Physician Documentation Information

This policy may apply to the following codes. Inclusion of a code in this section does not guarantee that it will be reimbursed. For further information on reimbursement guidelines, please see Administrative Policies on the Blue Cross Blue Shield of North Carolina web site at www.bcbsnc.com. They are listed in the Category Search on the Medical Policy search page.

**Applicable service codes:** 86780, 86952, 86953, 87490, 87491, 87492, 87110 86631, 86632, 87591, 87592, 87081, 87181, 87528, 87529, 87530, 87794, 86695, 86696, 87623, 87624, 87625, 88342, 88341, 88344

BCBSNC may request medical records for determination of medical necessity. When medical records are requested, letters of support and/or explanation are often useful, but are not sufficient documentation unless all specific information needed to make a medical necessity determination is included.

### Scientific Background and Reference Sources
Diagnostic Testing of Sexually Transmitted Infections AHS – G2157


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Diagnostic Testing of Sexually Transmitted Infections AHS – G2157

urogenital gonococcal infections. Sex Transm Infect, 93(S4), S16-s21. doi:10.1136/sxtrans-2017-053192


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Diagnostic Testing of Sexually Transmitted Infections AHS – G2157


Policy Implementation/Update Information

<table>
<thead>
<tr>
<th>Date</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/1/19</td>
<td>New policy developed. BCBSNC will provide coverage for diagnostic testing of sexually transmitted infections when it is determined to be medically necessary because the medical criteria and guidelines are met. Medical Director review 1/1/2019. Policy noticed 1/1/2019 for effective date 4/1/2019. (sk)</td>
</tr>
<tr>
<td>4/1/19</td>
<td>Added the following to coverage criteria for syphilis infection testing: A nontreponemal test as test of cure of a positive syphilis infection. Added the following as noncovered: Using immunoassay testing for herpes simplex virus-1 (HSV-1), herpes simplex virus-2 (HSV-2), and/or herpes simplex (non-specific type test) is considered not medically necessary. Notification given 4/1/19 for effective date 6/1/19. (sk)</td>
</tr>
<tr>
<td>10/29/19</td>
<td>Wording in the Policy, When Covered, and/or Not Covered section(s) changed from Medical Necessity to Reimbursement language, where needed. (gm)</td>
</tr>
<tr>
<td>12/10/19</td>
<td>Reviewed by Avalon 3rd Quarter CAB. No changes to policy. (sk)</td>
</tr>
</tbody>
</table>

Medical policy is not an authorization, certification, explanation of benefits or a contract. Benefits and eligibility are determined before medical guidelines and payment guidelines are applied. Benefits are determined by the group contract and subscriber certificate that is in effect at the time services are rendered. This document is solely provided for informational purposes only and is based on research of current medical literature and review of common medical practices in the treatment and diagnosis of disease. Medical practices and knowledge are constantly changing and BCBSNC reserves the right to review and revise its medical policies periodically.