



# GENITAL HERPES DIAGNOSIS: TECHNOLOGY AND TEST OPTIONS

In the US, genital herpes simplex virus (HSV) is the most prevalent sexually transmitted disease.<sup>1</sup> Most genital herpes is caused by HSV-2, but HSV-1 is increasingly a cause of infection.<sup>2</sup> Even though genital herpes infects more than 1 out of every 6 people aged 14-49, it often goes unnoticed with minimal or no symptoms.<sup>3</sup>

## Stages of Genital HSV Infection

Genital herpes is a complex disease with a range of infection stages. Once infected, patients may experience periodic reactivation (recurrence), which results in either symptomatic (lesions) or asymptomatic infection.<sup>4</sup> During primary infection and recurrence, the virus is active and transmissible. Most infections of genital HSV are transmitted by people who are asymptomatic.<sup>4</sup>

Stages of Infection	Description / Timing	Infection Characteristics		
		Symptoms?	Active Virus, DNA Detectable?	Antibodies Detectable?
Incubation Period	Average incubation period after genital HSV acquisition is approximately 4 days. <sup>4</sup>	N/A	N/A	N/A
Primary Infection (Viral Shedding)	Initial exposure to HSV and no type-specific antibodies at the time of infection. Average duration of primary infection is 12 days. <sup>4</sup>	Symptomatic	Yes	No
		Asymptomatic	Yes	No
Latency	Period of inactive virus and no transmissibility.	Asymptomatic	No	Yes
Recurrent Infections (Viral Shedding)	Start of viral recurrence is unpredictable. Typically lasts for an average of 4 days. <sup>4</sup> When present, lesions last for an average of 7 days. <sup>1</sup>	Symptomatic	Yes	Yes
		Asymptomatic	Yes	Yes
		Determined by Clinical Evaluation	Detected by NAA or Culture	Detected by Antibody Test

## Genital HSV Laboratory Tests

There are two main types of laboratory tests: (1) culture and nucleic acid amplification (NAA) PCR tests and (2) antibody tests. Although both culture and NAA detect active HSV virus, test performance varies. Antibody tests detect previous infection with HSV, primarily in asymptomatic cases.<sup>1</sup> In the United States, the seroprevalence of HSV-1 is reported to be 67%,<sup>5</sup> while for HSV-2 it is 22%.<sup>6</sup>

Test Type	Test Result	Indication
NAA—Swab Specimen	Positive	Indicates active genital herpes infection.
	Negative	Indicates no active genital herpes infection (false-negative rate of 5% to 8%). Patient may have latent infection. <sup>7</sup>
Culture—Swab Specimen	Positive	Indicates active genital herpes infection.
	Negative	Indicates no active genital herpes infection (false-negative rate up to 25%). Patient may have latent infection. <sup>5</sup>
IgG Antibody—Serum or Blood	Positive	HSV-1: Infected, but cannot differentiate oral from genital infection or whether virus is active. <sup>2</sup> HSV-2: Indicative of genital infection; cannot determine whether virus is active. <sup>2</sup>
	Negative	Indicates not infected with genital herpes; or infected but not seroconverted (primary infection). Seroconversion could take longer than 3 months in some cases. <sup>5</sup>

## Diagnostic considerations for genital herpes

### Symptomatic Cases

- Per ACOG guidelines, the diagnosis of genital herpes should be confirmed by a laboratory test.<sup>5</sup>
- NAA (PCR), with its substantially higher rate of HSV detection, has been advocated as the test of choice for symptomatic cases.<sup>6</sup>

### Asymptomatic Cases

- There are currently no guidelines to screen asymptomatic men or women for genital HSV.
- Antibody testing for patients with a high risk factor for HSV (ie, HIV infection) has been advocated.<sup>4</sup>

### Pregnant Patients

- Per ACOG guidelines, all women should be asked about symptoms of genital herpes early in pregnancy.<sup>2</sup>
- Primary infection with genital HSV at the time of delivery carries a 30% to 60% risk of transmission to the baby.<sup>2</sup>
- HSV-2 IgG antibody-negative mothers with HSV-2 antibody-positive partners (Occurring in approximately 10% of pregnancies) could acquire genital HSV during pregnancy and it is important to counsel the partners on practices for reducing risk.

### NAA vs Culture

- According to ACOG, the sensitivity of NAA (PCR) testing is 1.5 to 4 times greater than the sensitivity of viral culture.<sup>5</sup>
- NAA specimens are more stable than culture specimens and less affected by transport medium.<sup>5</sup>
- NAA testing is available on a single-collection swab that can conveniently test for other STDs, while HSV cultures require specialized viral transport media unsuitable for additional testing.

## LabCorp Test Options

The table below highlights the NAA and antibody test options for detecting genital herpes.

Test Option	Test No	Method	Types HSV 1 & 2	Specimen Source	Specimen Collection	Description
HSV types 1 and 2, NAA	188056	NAA	Yes	Lesions: Vaginal, Endocervical, Urethral	APTIMA® Swab or liquid cytology vial	Detect and type active HSV shedding
HSV types 1 and 2, specific antibodies, IgG with reflex	164922	Serology (CLIA)	Yes	Serum	Red-top tube or gel-barrier tube	Detect IgG antibodies specific to HSV type 1 and/or 2 infection. If HSV-2 IgG type specific antibodies patient results fall between 0.91 (equivocal) and 5.00 (low positive) index values, the specimen will reflex to HSV-2 supplemental test per CDC guidelines.

For more information, contact your local LabCorp representative, or visit [www.labcorp.com](http://www.labcorp.com) and select contact us to request a visit.

### References

1. Glass N, Nelson HD, Huffman L. Screening for genital herpes simplex: Brief update for the U.S Preventive Services Task Force. U.S. Preventive Services Task Force. March 2005.
2. The American College of Obstetricians and Gynecologists. Management of herpes in pregnancy. ACOG Practice Bulletin No.82. *Obstet Gynecol.* 2007 June;109:1489-1498.
3. Centers for Disease Control and Prevention. Genital Herpes CDC Fact Sheet. Available at <http://www.cdc.gov/std/herpes/stdfact-herpes.htm>. Accessed April 9, 2018.
4. Kimberlin DW, Rouse DJ. Genital herpes. *N Engl J Med.* 2004 May; 350(19): 1970-1977.
5. The American College of Obstetricians and Gynecologists. Gynecologic herpes simplex virus infections. ACOG Practice Bulletin No.57. *Obstet Gynecol.* 2004 Nov;104:1111-1117.
6. Ratnam S, Severini A, Zahariadis G, Petric M, Romanowski B. The diagnosis of genital herpes – beyond culture: An evidence-based guide for the utilization of polymerase chain reaction and herpes simplex virus type-specific serology. *Can J Infect Dis Med Microbiol.* 2007 July/August;18(4): 233-240.
7. Luminex Corporation. Multicode® -RTx HSV 1 & 2 Kit For *In Vitro* Diagnostic Use. Real-Time PCR Qualitative Detection and Typing of HSV-1 or HSV-2 [package insert]. Madison, WI: Luminex Corporation, 2012.



[www.LabCorp.com](http://www.LabCorp.com)

Visit the online Test Menu at [www.LabCorp.com](http://www.LabCorp.com) for complete test information, including specimen requirements.