INFECTIOUS DISEASE: VECTOR-BORNE AND TROPICAL DISEASES LAB TESTING

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Coding implications
Revision Log

OVERVIEW

Vector-borne diseases are caused by bacteria, viruses, and parasites that are transmitted by other living organisms to humans. Mosquitos, fleas, and ticks are examples of vectors. Mosquitoes can transmit diseases such as malaria or Zika virus infection, and ticks can transmit Lyme disease and ehrlichiosis, among others. Risk factors for vector-borne diseases include geographical area/climate, seasonality, quality of water supply and sanitation, and social factors influencing contact with vectors, such as travel and trade. Many vector-borne illnesses are most common in tropical or subtropical environments. This policy outlines criteria for Lyme disease and Zika virus testing via serologic and molecular methods.

This policy is intended for use in the outpatient setting.

POLICY REFERENCE TABLE

Criteria Sections	Example Tests (Labs)	References
Lyme Disease Serum Antibody Tests (Borrelia burgdorferi)	Lyme Disease Ab with Reflex to Blot (IgG, IgM) (Quest Diagnostics)	1
Lyme Disease NAAT/PCR Tests (Borrelia burgdorferi)	Lyme Disease, Borrelia burgdorferi, Real-time PCR (LabCorps)	

Other Non-covered Lyme Disease Tests	Lymphocyte Antigen Proliferation (ARUP Laboratories)	
	Lyme Borrelia Nanotrap Urine Antigen Test (Galaxy Diagnostics)	
	Lyme ImmunoBlots IgG (IGeneX Inc.)	
	Lyme ImmunoBlot IgM (IGeneX Inc.)	
Zika Virus Nucleic Acid/PCR Tests	Zika Virus, PCR, Molecular Detection, Serum (Mayo Clinic Laboratories)	2, 3
Zika Virus Antibody Tests	Zika Virus, IgM Antibody Capture ELISA, Serum (Mayo Clinic Laboratories)	

CRITERIA

It is the policy of Louisiana Healthcare Connections that the specific tests noted below are **medically necessary** when meeting the related criteria:

LYME DISEASE TESTS

Lyme Disease Serum Antibody Tests (*Borrelia burgdorferi*)

I. Lyme disease serum antibody testing (86617, 86618) may be considered **medically necessary** when:

   A. The member had a plausible exposure to *Borrelia burgdorferi*, **AND**

   B. The member has at least one of the following:

      1. Skin lesion(s) suggestive of, but atypical for erythema migrans, **OR**

      2. Suspected Lyme neuroborreliosis involving either the peripheral or central nervous system, **OR**

      3. Suspected Lyme arthritis, **OR**

4. Acute myocarditis/pericarditis.

II. Current evidence does not support the use of Lyme disease serum antibody testing for all other indications, including, but not limited to:

A. Asymptomatic patients following tick bite, **OR**

B. Erythema migrans, **OR**

C. Typical amyotrophic lateral sclerosis, **OR**

D. Relapsing-remitting multiple sclerosis, **OR**

E. Parkinson's disease, **OR**

F. Dementia/cognitive decline, **OR**

G. New-onset seizures, **OR**

H. Nonspecific magnetic resonance imaging (MRI) white matter abnormalities confined to the brain, **OR**

I. Psychiatric illness, **OR**

J. Children presenting with developmental or behavioral disorders, **OR**

K. Chronic cardiomyopathy of unknown cause.

Lyme Disease NAAT/PCR Tests (*Borrelia burgdorferi*)

I. Lyme disease NAAT/PCR testing may be considered **medically necessary** when:

A. The member is seropositive for Lyme disease, **AND**

B. The member has suspected Lyme arthritis, **AND**

C. This testing is necessary for making treatment decisions.

II. Current evidence does not support Lyme disease NAAT/PCR testing for all other indications, including for the purpose of diagnosing Lyme disease.

Other Non-covered Lyme Disease Tests

I. It is the policy of health plans affiliated with Centene Corporation that current evidence does not support the use of the following specific Lyme disease tests:

A. Lymphocyte transformation tests

B. Lyme Borrelia Nanotrap Urine Antigen Test

C. Lyme ImmunoBlots IgG

D. Lyme ImmunoBlot IgM

ZIKA TESTS

Zika Virus Nucleic Acid/PCR Tests

I. Zika virus nucleic acid/PCR tests may be considered **medically necessary** when:

A. The member is pregnant, **AND**

1. Had a plausible exposure to Zika virus (e.g., traveled to or lives in an area with transmission or sexual relations with someone who traveled to or lives in an area with transmission), **OR**

B. +The member is 12 months of age or younger, **AND**

1. The member's mother had laboratory evidence of Zika virus infection during pregnancy, **OR**

2. Has symptoms of congenital Zika virus infection, **AND**

a) The member's mother had a plausible exposure to Zika virus (regardless of mother's Zika virus test results).

II. Current evidence does not support Zika virus nucleic acid/PCR tests for all other indications, including, but not limited to:

A. Symptomatic, non-pregnant members, **OR**

B. Routine pre-conception or prenatal screening.

Zika Virus Antibody Tests

I. Zika virus antibody tests may be considered **medically necessary** when:

A. The member is pregnant, **AND**

1. Prenatal ultrasound findings are consistent with congenital Zika virus infection (e.g., microcephaly, ventriculomegaly, or abnormalities of the corpus callosum), **AND**

2. Had a plausible exposure to Zika virus (e.g., traveled to or lives in an area with transmission or had sexual relations with someone who traveled to or lives in an area with transmission), **OR**

B. The member is 12 months of age or younger, **AND**

1. The member's mother had laboratory evidence of Zika virus infection during pregnancy, **OR**

2. Has symptoms of congenital Zika virus infection, **AND**

a) The member's mother had a plausible exposure to Zika virus.

II. Current evidence does not support Zika virus antibody tests for all other indications, including, but not limited to:

A. Symptomatic* or asymptomatic pregnant members, **OR**

B. Symptomatic*, non-pregnant members, **OR**

C. Routine pre-conception or prenatal screening.

*Personal symptoms of Zika virus infection such as fever and conjunctivitis.

NOTES AND DEFINITIONS

1. **Lyme neuroborreliosis** is characterized by cranial or peripheral nerve involvement (facial palsy, radiculoneuropathy), or central nervous system involvement (meningitis/encephalitis).

2. **Lyme arthritis** is characterized by obvious swelling of one or more joints and joint pain with movement.

3. **Congenital Zika virus infection** is a syndrome characterized by a combination of severe microcephaly, sometimes with malformation of the craniofacial bones/skull; decreased brain tissue with a specific pattern of brain damage, including subcortical calcifications; damage to the back of the eye, including macular scarring and focal retinal pigmentary mottling; congenital contractures, such as clubfoot or arthrogryposis; and hypertonia/stiff or rigid posture with restricted movement.

BACKGROUND AND RATIONALE

Lyme Disease Testing (Borrelia burgdorferi)

Infectious Diseases Society of America (IDSA), American Academy of Neurology (AAN), and American College of Rheumatology (ACR)

In the 2020 Guidelines for the Prevention, Diagnosis and Treatment of Lyme Disease, the joint societies make the following recommendations regarding diagnostic testing for Lyme disease. (p. e2-e5)

- Recommend **against** testing in:
    - Asymptomatic patients for exposure to *B. burgdorferi* following an Ixodes spp. tick bite (strong recommendation, moderate-quality evidence),
    - Patients with potential tick exposure in a Lyme disease endemic area who have 1 or more skin lesions compatible with erythema migrans; we recommend clinical diagnosis rather than laboratory testing (strong recommendation, moderate quality evidence).
    - [X.2] Patients with typical amyotrophic lateral sclerosis, relapsing-remitting multiple sclerosis, Parkinson's disease, dementia or cognitive decline, or new-onset seizures (strong recommendation, low-quality evidence).
    - Patients presenting with nonspecific magnetic resonance imaging (MRI) white matter abnormalities confined to the brain in the absence of a history of other clinical or epidemiologic support for the diagnosis of Lyme disease (weak recommendation, low-quality evidence).
    - Patients with psychiatric illness (strong recommendation, low-quality evidence)
    - Children presenting with developmental, behavioral or psychiatric disorders (weak recommendation, low-quality evidence).
    - Patients with neurological syndromes other than those listed in recommendation X.1 or X.2 , in the absence of a history of other clinical or epidemiologic support for the diagnosis of Lyme disease (strong recommendation, low-quality evidence).
    - Patients with chronic cardiomyopathy of unknown cause (weak recommendation, low-quality evidence).

- Recommend **serum antibody** testing in:
    - Patients with 1 or more skin lesions suggestive of, but atypical for erythema migrans (weak recommendation, low-quality evidence).
    - Patients with possible Lyme neuroborreliosis involving either the peripheral nervous system (PNS) or central nervous system (CNS).
        - [X.1] Patients presenting with 1 or more of the following acute disorders: meningitis, painful radiculoneuritis, mononeuropathy multiplex including confluent mononeuropathy multiplex, acute cranial neuropathies (particularly VII, VIII, less commonly III, V, VI and others), or in patients with evidence of spinal cord (or rarely brain) inflammation, the former particularly in association with painful radiculitis involving related spinal cord segments, and with epidemiologically plausible exposure to ticks infected with *B burgdorferi* (strong recommendation, moderate-quality evidence).
    - Patients with possible Lyme arthritis (strong recommendation, moderate quality of evidence).
    - Patients with acute myocarditis/pericarditis of unknown cause in an appropriate epidemiologic setting, we recommend testing for Lyme disease (strong recommendation, low quality evidence).

Lyme Disease PCR Testing (*Borrelia burgdorferi*)

Infectious Diseases Society of America (IDSA), American Academy of Neurology (AAN), and American College of Rheumatology (ACR)

In the 2020 Guidelines for the Prevention, Diagnosis and Treatment of Lyme Disease, the joint societies recommend serum antibody testing over PCR or culture methods in most clinical scenarios (V.1, IX.1, p. e2-e5).

"…numerous nonserologic methods have been proposed or developed, including nucleic acid amplification tests, culture methods, and antigen detection assays, among others. At present, few nonserologic testing methods are useful or practical for clinical diagnosis, and those that are—primarily nucleic acid amplification tests—are mostly
beneficial as adjunctive tests in select clinical scenarios when 2-tiered serologic testing is positive."

The joint societies only explicitly recommend PCR testing for Lyme disease in one clinical scenario:

"In seropositive patients for whom the diagnosis of Lyme arthritis is being considered but treatment decisions require more definitive information, we recommend PCR applied to synovial fluid or tissue rather than Borrelia culture of those samples (strong recommendation, moderate-quality evidence)." (p. e5)

Other Non-covered Lyme Disease Tests

Infectious Diseases Society of America (IDSA), American Academy of Neurology (AAN), and American College of Rheumatology (ACR)

"Some commercially available laboratory testing methods, including nonstandard serology interpretation, urine antigen, DNA testing, the use of a lymphocyte transformation test, or quantitative CD57 lymphocyte assay should be avoided for clinical use due to lack of systematic, independent, reproducible validation studies." (p. e10)

Zika Virus NAAT/PCR Tests

Centers for Disease Control and Prevention (CDC)

- For asymptomatic pregnant persons living in or with recent travel to the U.S. and its territories, routine Zika virus testing is NOT currently recommended.
- For asymptomatic pregnant women with recent travel to an area with risk of Zika outside the U.S. and its territories, Zika virus testing of any kind is NOT routinely recommended; if testing is performed, it can be performed via NAAT up to 12 weeks after travel.
- Healthcare providers should test pregnant women with symptoms of Zika (e.g., fever, rash, headache, arthralgia, conjunctivitis, and muscle pain) if they may have been

exposed to Zika through sex without a condom with a person who lives in or traveled to an area with risk of Zika.

- Zika virus NAAT should be performed on maternal serum and urine for pregnant women who have a fetus with prenatal ultrasound findings consistent with congenital Zika virus infection who live in or traveled to areas with a risk of Zika during pregnancy.
- Zika virus testing should NOT be performed as part of preconception screening.
- Zika testing is NOT currently recommended for symptomatic non-pregnant patients based on the current epidemiology of these viruses.

"Laboratory testing for congenital Zika virus infection is recommended for infants born to mothers with laboratory evidence of Zika virus infection during pregnancy, and for infants who have abnormal clinical findings suggestive of congenital Zika virus syndrome and a maternal epidemiologic link suggesting possible transmission, regardless of maternal Zika virus test results."

Zika Virus Antibody Tests

Centers for Disease Control and Prevention (CDC)

- Zika virus serologic testing is NOT recommended for symptomatic or asymptomatic pregnant women.
- Zika virus IgM testing should be performed on maternal serum for pregnant women who have a fetus with prenatal ultrasound findings consistent with congenital Zika virus infection who live in or traveled to areas with a risk of Zika during pregnancy or had potential sexual exposure to a partner who lives in or traveled to an area with risk of Zika.
- Zika virus testing should NOT be performed as part of preconception screening.
- Zika testing is NOT currently recommended for symptomatic non-pregnant patients based on the current epidemiology of these viruses.

"Laboratory testing for congenital Zika virus infection is recommended for infants born to mothers with laboratory evidence of Zika virus infection during pregnancy, and for infants who have abnormal clinical findings suggestive of congenital Zika virus syndrome and a maternal epidemiologic link suggesting possible transmission, regardless of maternal Zika virus test results."

Coding Implications

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NOTE: Coverage is subject to each requested code's inclusion on the corresponding LDH fee schedule. Non-covered codes are denoted (*) and are reviewed for Medical Necessity for members under 21 years of age on a per case basis.

CPT® Code	Description
86617	Antibody; Borrelia burgdorferi (Lyme disease) confirmatory test (eg, Western Blot or immunoblot)
86618	Antibody; Borrelia burgdorferi (Lyme disease)
86794	Antibody; Zika virus, IgM
87475	Infectious agent detection by nucleic acid (DNA or RNA); Borrelia burgdorferi, direct probe technique
87476	Infectious agent detection by nucleic acid (DNA or RNA); Borrelia burgdorferi, amplified probe technique
87662	Infectious agent detection by nucleic acid (DNA or RNA); Zika virus, amplified probe technique
0041U*	Borrelia burgdorferi, antibody detection of 5 recombinant protein groups, by immunoblot, IgM
0042U*	Borrelia burgdorferi, antibody detection of 12 recombinant protein groups, by immunoblot, IgG
0316U*	Borrelia burgdorferi (Lyme disease), OspA protein evaluation, urine

Reviews, Revisions, and Approvals	Revision Date	Approval Date
Converted corporate to local policy.	03/24	5/1/24

REFERENCES

1. Lantos PM, Rumbaugh J, Bockenstedt LK, Falck-Ytter YT, Aguero-Rosenfeld ME, Auwaerter PG, Baldwin K, Bannuru RR, Belani KK, Bowie WR, Branda JA, Clifford DB, DiMario FJ Jr, Halperin JJ, Krause PJ, Lavergne V, Liang MH, Meissner HC, Nigrovic LE, Nocton JJJ, Osani MC, Pruitt AA, Rips J, Rosenfeld LE, Savoy ML, Sood SK, Steere AC, Strle F, Sundel R, Tsao J, Vaysbrot EE, Wormser GP, Zemel LS. Clinical Practice Guidelines by the Infectious Diseases Society of America, American Academy of Neurology, and American College of Rheumatology: 2020 Guidelines for the Prevention, Diagnosis, and Treatment of Lyme Disease. Neurology. 2021 Feb 9;96(6):262-273. doi: 10.1212/WNL.0000000000011151. Epub 2020 Nov 30. Erratum in: Neurology. 2021 Feb 9;96(6):296. PMID: 33257476.

2. Collecting & Submitting Specimens At Time of Birth for Zika Virus Testing. Centers for Disease Control and Prevention. September 26, 2018. Accessed January 02, 2024. https://www.cdc.gov/zika/hc-providers/test-specimens-at-time-of-birth.html.
3. Zika and Dengue Testing Guidance. Centers for Disease Control and Prevention. . https://www.cdc.gov/zika/hc-providers/testing-guidance.html. Published September 29, 2022. Accessed January 02, 2024.
4. World Health Organization. Laboratory testing for Zika virus and dengue virus infections: Interim Guidance. https://iris.who.int/bitstream/handle/10665/359857/WHO-ZIKV-DENV-LAB-2022.1-eng.pdf?sequence=1. Published July 14, 2022. Accessed January 04, 2024.

Important Reminder

This clinical policy has been developed by appropriately experienced and licensed health care professionals based on a review and consideration of currently available generally accepted standards of medical practice; peer-reviewed medical literature; government agency/program approval status; evidence-based guidelines and positions of leading national health professional organizations; views of physicians practicing in relevant clinical areas affected by this clinical policy; and other available clinical information. LHCC makes no representations and accepts no liability with respect to the content of any external information used or relied upon in developing this clinical policy. This clinical policy is consistent with standards of medical practice current at the time that this clinical policy was approved.

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