of Tennessee

Policy

Reimbursement Policy

Pathogen Panel Testing

I. Policy Description

Infectious diseases can be caused by a wide range of pathogens. Conventional diagnostic methods like culture, microscopy with or without stains and immunofluorescence, and immunoassay often lack sensitivity and specificity and have long turnaround times. Panels for pathogens using multiplex amplified probe techniques and multiplex reverse transcription can detect and identify multiple pathogens in one test using a single sample.[1]

II. Indications and/or Limitations of Coverage

Application of coverage criteria is dependent upon an individual's benefit coverage at the time of the request. Specifications pertaining to Medicare and Medicaid can be found in the "Applicable State and Federal Regulations" section of this policy document.

This policy is specific to testing in the outpatient setting. Criteria below do not apply to testing allowances in situations other than the outpatient setting.

1) For individuals with persistent diarrhea or diarrhea with signs or risk factors for severe disease (i.e., fever, bloody diarrhea, dysentery, dehydration, severe abdominal pain), multiplex PCR-based panel testing (up to **11** gastrointestinal pathogens [GIPs]) no more often than once every 7 days **MEETS COVERAGE CRITERIA**.

2) For individuals who are displaying signs and symptoms of a respiratory tract infection (see Note 1), panel testing of up to **5** respiratory pathogens (antigen panel testing or multiplex PCR-based panel testing) **MEETS COVERAGE CRITERIA**.

3) Multiplex PCR-based panel testing of **12 or more** GIPs **DOES NOT MEET COVERAGE CRITERIA**.

4) Antigen panel testing or multiplex PCR-based panel testing of **6 or more** respiratory pathogens **DOES NOT MEET COVERAGE CRITERIA**.

5) Multiplex PCR-based panel testing of pathogens in cerebrospinal fluid (CSF) **DOES NOT MEET COVERAGE CRITERIA**.

6) Molecular detection-based panel testing of pathogens in the blood **DOES NOT MEET COVERAGE CRITERIA**.

The following does not meet coverage criteria due to a lack of available published scientific literature confirming that the test(s) is/are required and beneficial for the diagnosis and treatment of an individual's illness.

7) Molecular detection-based panel testing of urine pathogens for the diagnosis of urinary tract infections (e.g., GENETWORx Molecular PCR UTI Test) **DOES NOT MEET COVERAGE CRITERIA**.

8) Molecular-based panel testing to screen for or diagnose wound infections (e.g., GENETWORx PCR Wound Testing) **DOES NOT MEET COVERAGE CRITERIA**.

9) Molecular-based panel testing for general screening of microorganisms (e.g., MicroGenDX qPCR+ NGS) **DOES NOT MEET COVERAGE CRITERIA**.

NOTES:

Note 1: Signs and symptoms of a respiratory tract infection include fever, chills, fatigue, cough, rhinorrhea, anorexia, pharyngitis, vomiting, new ageusia or anosmia, headaches, myalgia, diarrhea, and weakness.[2] Additional signs and symptoms of a respiratory tract infection may be seen in individuals who are less than 18 years of age. These include irritability, decreased activity, nausea, rash, stomach pain, ear tugging/otalgia, vomiting after coughing, tachypnea, chest retractions/nasal flaring, grunting, wheezing, crackles, dehydration, cyanosis, apnea episodes, drooling, or refusal to eat. For infants, non-specific signs such as poor feeding, lethargy, and fussiness may present over clear localizing symptoms.[3-7]

III. Applicable State and Federal Regulations

DISCLAIMER: If there is a conflict between this Policy and any relevant, applicable government policy for a particular member [e.g., Local Coverage Determinations (LCDs) or National Coverage Determinations (NCDs) for Medicare and/or state coverage for Medicaid], then the government policy will be used to make the determination. For the most up-to-date Medicare policies and coverage, please visit the Medicare search website: http://www.cms.gov/medicare-coverage-database/search.aspx. For the most up-to-date Medicaid policies and coverage, visit the applicable state Medicaid website.

Food and Drug Administration (FDA)

Reimbursement Policy

There are numerous FDA-approved pathogen panels. 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 as high-complexity tests under the Clinical Laboratory Improvement Amendments of 1988 (CLIA '88). LDTs are not approved or cleared by the U. S. Food and Drug Administration; however, FDA clearance or approval is not currently required for clinical use.

IV. Applicable CPT/HCPCS Procedure Codes

CPT	Code Description
87154	Culture, typing; identification of blood pathogen and resistance typing, when performed, by nucleic acid (DNA or RNA) probe, multiplexed amplified probe technique including multiplex reverse transcription, when performed, per culture or isolate, 6 or more targets
87428	Infectious agent antigen detection by immunoassay technique, (eg, enzyme immunoassay [EIA], enzyme-linked immunosorbent assay [ELISA], fluorescence immunoassay [FIA], immunochemiluminometric assay [IMCA]) qualitative or semiquantitative; severe acute respiratory syndrome coronavirus (eg, SARS-CoV, SARS-CoV-2 [COVID-19]) and influenza virus types A and B
87483	Infectious agent detection by nucleic acid (DNA or RNA); central nervous system pathogen (eg, Neisseria meningitidis, Streptococcus pneumoniae, Listeria, Haemophilus influenzae, E. coli, Streptococcus agalactiae, enterovirus, human parechovirus, herpes simplex virus type 1 and 2, human herpesvirus 6, cytomegalovirus, varicella zoster virus, Cryptococcus), includes multiplex reverse transcription, when performed, and multiplex amplified probe technique, multiple types or subtypes, 12-25 targets
87505	Infectious agent detection by nucleic acid (DNA or RNA); gastrointestinal pathogen (eg, Clostridium difficile, E. coli, Salmonella, Shigella, norovirus, Giardia), includes multiplex reverse transcription, when performed, and multiplex amplified probe technique, multiple types or subtypes, 3-5 targets
87506	Infectious agent detection by nucleic acid (DNA or RNA); gastrointestinal pathogen (eg, Clostridium difficile, E. coli, Salmonella, Shigella, norovirus, Giardia), includes multiplex reverse transcription, when performed, and multiplex amplified probe technique, multiple types or subtypes, 6-11 targets
87507	Infectious agent detection by nucleic acid (DNA or RNA); gastrointestinal pathogen (eg, Clostridium difficile, E. coli, Salmonella, Shigella, norovirus, Giardia), includes multiplex reverse transcription, when performed, and multiplex amplified probe technique, multiple types or subtypes, 12-25 targets

Reimbursement Policy

CPT	Code Description
87631	Infectious agent detection by nucleic acid (DNA or RNA); respiratory virus (eg, adenovirus, influenza virus, coronavirus, metapneumovirus, parainfluenza virus, respiratory syncytial virus, rhinovirus), includes multiplex reverse transcription, when performed, and multiplex amplified probe technique, multiple types or subtypes, 3-5 targets
87632	Infectious agent detection by nucleic acid (DNA or RNA); respiratory virus (eg, adenovirus, influenza virus, coronavirus, metapneumovirus, parainfluenza virus, respiratory syncytial virus, rhinovirus), includes multiplex reverse transcription, when performed, and multiplex amplified probe technique, multiple types or subtypes, 6-11 targets
87633	Infectious agent detection by nucleic acid (DNA or RNA); respiratory virus (eg, adenovirus, influenza virus, coronavirus, metapneumovirus, parainfluenza virus, respiratory syncytial virus, rhinovirus), includes multiplex reverse transcription, when performed, and multiplex amplified probe technique, multiple types or subtypes, 12-25 targets
87636	Infectious agent detection by nucleic acid (DNA or RNA); severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (Coronavirus disease [COVID-19]) and influenza virus types A and B, multiplex amplified probe technique
87637	Infectious agent detection by nucleic acid (DNA or RNA); severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (Coronavirus disease [COVID-19]) and influenza virus types A and B, and respiratory syncytial virus, multiplex amplified probe technique
0068U	Candida species panel (C. albicans, C. glabrata, C. parapsilosis, C. kruseii, C tropicalis, and C. auris), amplified probe technique with qualitative report of the presence or absence of each species Proprietary test: MycoDART-PCR™ dual amplification real time PCR panel for 6 Candida species Lab/Manufacturer: RealTime Laboratories, Inc/MycoDART, Inc
0086U	Infectious disease (bacterial and fungal), organism identification, blood culture, using rRNA FISH, 6 or more organism targets, reported as positive or negative with phenotypic minimum inhibitory concentration (MIC)-based antimicrobial susceptibility Proprietary test: Accelerate PhenoTest™ BC kit Lab/Manufacturer: Accelerate Diagnostics, Inc.

Reimbursement Policy

CPT	Code Description
0109U	Infectious disease (Aspergillus species), real-time PCR for detection of DNA from 4 species (A. fumigatus, A. terreus, A. niger, and A. flavus), blood, lavage fluid, or tissue, qualitative reporting of presence or absence of each species Proprietary test: MYCODART Dual Amplification Real Time PCR Panel for 4 Aspergillus species Lab/Manufacturer: RealTime Laboratories/MycoDART, Inc
0112U	Infectious agent detection and identification, targeted sequence analysis (16S and 18S rRNA genes) with drug-resistance gene Proprietary test: MicroGenDX qPCR & NGS For Infection Lab/Manufacturer: MicroGenDX
0115U	Respiratory infectious agent detection by nucleic acid (DNA and RNA), 18 viral types and subtypes and 2 bacterial targets, amplified probe technique, including multiplex reverse transcription for RNA targets, each analyte reported as detected or not detected Proprietary test: ePlex Respiratory Pathogen Panel Lab/Manufacturer: GenMark Diagnostics, Inc
0140U	Infectious disease (fungi), fungal pathogen identification, DNA (15 fungal targets), blood culture, amplified probe technique, each target reported as detected or not detected Proprietary test: ePlex® BCID Fungal Pathogens Panel Lab/Manufacturer: GenMark Diagnostics, Inc
0141U	Infectious disease (bacteria and fungi), gram-positive organism identification and drug resistance element detection, DNA (20 gram-positive bacterial targets, 4 resistance genes, 1 pan gram-negative bacterial target, 1 pan Candida target), blood culture, amplified probe technique, each target reported as detected or not detected Proprietary test: ePlex® BCID Gram-Positive Panel Lab/Manufacturer: GenMark Diagnostics, Inc
0142U	Infectious disease (bacteria and fungi), gram-negative bacterial identification and drug resistance element detection, DNA (21 gram-negative bacterial targets, 6 resistance genes, 1 pan gram-positive bacterial target, 1 pan Candida target), amplified probe technique, each target reported as detected or not detected Proprietary test: ePlex® BCID Gram-Negative Panel Lab/Manufacturer: GenMark Diagnostics, Inc
0152U	Infectious disease (bacteria, fungi, parasites, and DNA viruses), DNA, PCR and next-generation sequencing, plasma, detection of >1,000 potential microbial organisms for significant positive pathogens Proprietary test: Karius® Test Lab/Manufacturer: Karius Inc

Reimbursement Policy

CPT	Code Description
0202U	Infectious disease (bacterial or viral respiratory tract infection), pathogen-specific nucleic acid (DNA or RNA), 22 targets including severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), qualitative RT-PCR, nasopharyngeal swab, each pathogen reported as detected or not detected Proprietary test: BioFire® Respiratory Panel 2.1 (RP2.1) Lab/Manufacturer: BioFire® Diagnostics
0223U	Infectious disease (bacterial or viral respiratory tract infection), pathogen-specific nucleic acid (DNA or RNA), 22 targets including severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), qualitative RT-PCR, nasopharyngeal swab, each pathogen reported as detected or not detected Proprietary test: QIAstat-Dx Respiratory SARS CoV-2 Panel Lab/Manufacturer: QIAGEN GmbH
0225U	Infectious disease (bacterial or viral respiratory tract infection) pathogen-specific DNA and RNA, 21 targets, including severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), amplified probe technique, including multiplex reverse transcription for RNA targets, each analyte reported as detected or not detected Proprietary test: ePlex® Respiratory Pathogen Panel 2 Lab/Manufacturer: GenMark Diagnostics
0321U	Infectious agent detection by nucleic acid (DNA or RNA), genitourinary pathogens, identification of 20 bacterial and fungal organisms and identification of 16 associated antibiotic-resistance genes, multiplex amplified probe technique Proprietary test: Bridge Urinary Tract Infection Detection and Resistance Test Lab/Manufacturer: Bridge Diagnostics
0323U	Infectious agent detection by nucleic acid (DNA and RNA), central nervous system pathogen, metagenomic next-generation sequencing, cerebrospinal fluid (CSF), identification of pathogenic bacteria, viruses, parasites, or fungi Proprietary test: Johns Hopkins Metagenomic Next-Generation Sequencing Assay for Infectious Disease Diagnostics Lab/Manufacturer: Johns Hopkins Medical Microbiology Laboratory
0371U	Infectious agent detection by nucleic acid (DNA or RNA), genitourinary pathogen, semiquantitative identification, DNA from 16 bacterial organisms and 1 fungal organism, multiplex amplified probe technique via quantitative polymerase chain reaction (qPCR), urine Proprietary test: Clear UTI Lab/Manufacturer: Lifescan Labs of Illinois, Thermo Fisher Scientific

Reimbursement Policy

CPT	Code Description
0441U	Infectious disease (bacterial, fungal, or viral infection), semiquantitative biomechanical assessment (via deformability cytometry), whole blood, with algorithmic analysis and result reported as an index Proprietary test: IntelliSep® test Lab/Manufacturer: Cytovale®
0442U	Infectious disease (respiratory infection), myxovirus resistance protein a (mxa) and c-reactive protein (crp), fingerstick whole blood specimen, each biomarker reported as present or absent Proprietary test: FebriDx® Bacterial/NonBacterial Point-of Care Assay Lab/Manufacturer: Lumos Diagnostics, LLC, Lumos Diagnostics, LLC
0480U	Infectious disease (bacteria, viruses, fungi, and parasites), cerebrospinal fluid (CSF), metagenomic next-generation sequencing (DNA and RNA), bioinformatic analysis, with positive pathogen identification Proprietary test: Bacteria, Viruses, Fungus, and Parasite Metagenomic Sequencing, Spinal Fluid (MSCSF) Lab/Manufacturer: Mayo Clinic, Laboratory Developed Test
0504U	Infectious disease (urinary tract infection), identification of 17 pathologic organisms, urine, real-time PCR, reported as positive or negative for each organism Proprietary test: Urinary Tract Infection Testing Lab/Manufacturer: NxGen MDx LLC
0528U	Lower respiratory tract infectious agent detection, 18 bacteria, 8 viruses, and 7 antimicrobial resistance genes, amplified probe technique, including reverse transcription for RNA targets, each analyte reported as detected or not detected with semiquantitative results for 15 bacteria Proprietary Test: BIOFIRE® FILMARRAY® Pneumonia (PN) Panel Lab/Manufacturer: bioMérieux, bioMérieux
0531U	Infectious disease (acid-fast bacteria and invasive fungi), DNA (673 organisms), nextgeneration sequencing, plasma Proprietary test: NeXGenTM Fungal/AFB NGS Assay Lab/Manufacturer: Eurofins Viracor, LLC
0556U	Infectious disease (bacterial or viral respiratory tract infection), pathogen-specific DNA and RNA by real-time PCR, 12 targets, nasopharyngeal or oropharyngeal swab, including multiplex reverse transcription for RNA targets, each analyte reported as detected or not detected Proprietary test: HealthTrackRx Bronchitis, HealthTrackRx Lab/Manufacturer: Thermo Fisher Scientific

CPT	Code Description
0563U	Infectious disease (bacterial and/or viral respiratory tract infection), pathogen-specific nucleic acid (DNA or RNA), 11 viral targets and 4 bacterial targets, qualitative RT-PCR, upper respiratory specimen, each pathogen reported as positive or negative Proprietary test: BIOFIRE® SPOTFIRE® Respiratory/Sore Throat (R/ST) Panel – Respiratory Menu Lab/Manufacturer: bioMérieux
0564U	Infectious disease (bacterial and/or viral respiratory tract infection), pathogen-specific nucleic acid (DNA or RNA), 10 viral targets and 4 bacterial targets, qualitative RT-PCR, upper respiratory specimen, each pathogen reported as positive or negative Proprietary test: BIOFIRE® SPOTFIRE® Respiratory/Sore Throat (R/ST) Panel – Sore Throat Menu, Lab/Manufacturer: bioMérieux

Procedure codes appearing in policy documents are included only as a general reference tool for each policy. They may not be all-inclusive.

V. Evidence-based Scientific References

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VI. Revision History

Revision Date	Summary of Changes
06/04/2025	Reviewed and Updated: Updated background, guidelines, and evidence-based scientific references. Literature review necessitated the following changes in coverage criteria: CC2 and CC4 edited to add antigen panel testing, CC2 edited to move respiratory infection signs/symptoms into new Note 1. CC now read: 2) For individuals who are displaying signs and symptoms of a respiratory tract infection (see Note 1), panel testing of up to 5 respiratory pathogens (antigen panel testing or multiplex PCR-based panel testing) MEETS COVERAGE CRITERIA." "4) Antigen panel testing or multiplex PCR-based panel testing of 6 or more respiratory pathogens DOES NOT MEET COVERAGE CRITERIA." New Note 1: "Note 1: Signs and symptoms of a respiratory tract infection include fever, chills, fatigue, cough, rhinorrhea, anorexia, pharyngitis,

	vomiting, new ageusia or anosmia, headaches, myalgia, diarrhea, and weakness. Additional signs and symptoms of a respiratory tract infection may be seen in individuals who are less than 18 years of age. These include irritability, decreased activity, nausea, rash, stomach pain, ear tugging/otalgia, vomiting after coughing, tachypnea, chest retractions/nasal flaring, grunting, wheezing, crackles, dehydration, cyanosis, apnea episodes, drooling, or refusal to eat. For infants, non-specific signs such as poor feeding, lethargy, and fussiness may present over clear localizing symptoms." Added CPT code 87428; 0556U, 0563U, 0564U (effective date 7/1/2025) Removed CPT code 0240U, 0241U, 0369U, 0370U 0373U, 0374U (deleted code; effective date 7/1/2025)
03/05/2025	Off-cycle coding modification: Added CPT code 0531U (effective date 4/1/2025)