Geisinger

Geisinger Health Plan Policies and Procedure Manual

Policy: MP374

Section: Medical Policy

Subject: Genetic Testing for Inheritable Diseases

Applicable line of business:

Commercial	**x**	**Medicaid**	**x**
Medicare	**x**	**ACA**	**x**
CHIP	**x**		

I. Policy: Genetic Testing for Inheritable Diseases

II. Purpose/Objective: To provide a policy of coverage regarding Genetic Testing for Inheritable Diseases

III. Responsibility:

A. Medical Directors
B. Medical Management

IV. Required Definitions

1. Attachment – a supporting document that is developed and maintained by the policy writer or department requiring/authoring the policy.
2. Exhibit – a supporting document developed and maintained in a department other than the department requiring/authoring the policy.
3. Devised – the date the policy was implemented.
4. Revised – the date of every revision to the policy, including typographical and grammatical changes.
5. Reviewed – the date documenting the annual review if the policy has no revisions necessary.

Commercial

Geisinger Health Plan may refer collectively to health care coverage sponsors Geisinger Health Plan, Geisinger Quality Options, Inc., and Geisinger Indemnity Insurance Company, unless otherwise noted. Geisinger Health Plan is part of Geisinger, an integrated health care delivery and coverage organization.

Medicare

Geisinger Gold Medicare Advantage HMO, PPO, and HMO D-SNP plans are offered by Geisinger Health Plan/Geisinger Indemnity Insurance Company, health plans with a Medicare contract. Continued enrollment in Geisinger Gold depends on contract renewal. Geisinger Health Plan/Geisinger Indemnity Insurance Company are part of Geisinger, an integrated health care delivery and coverage organization.

CHIP

Geisinger Health Plan Kids (GHP Kids) is a Children's Health Insurance Program (CHIP) offered by Geisinger Health Plan in conjunction with the Pennsylvania Department of Human Services (DHS). Geisinger Health Plan is part of Geisinger, an integrated health care delivery and coverage organization.

Medicaid

Geisinger Health Plan Family (GHP Family) is a Medical Assistance (Medicaid) insurance program offered by Geisinger Health Plan in conjunction with the Pennsylvania Department of Human Services (DHS). Geisinger Health Plan is part of Geisinger, an integrated health care delivery and coverage organization.

V. Additional Definitions
Medical Necessity or Medically Necessary means Covered Services rendered by a Health Care Provider that the Plan determines are:

a. appropriate for the symptoms and diagnosis or treatment of the Member's condition, illness, disease or injury;
b. provided for the diagnosis, and the direct care and treatment of the Member's condition, illness disease or injury;
c. in accordance with current standards of good medical treatment practiced by the general medical community.
d. not primarily for the convenience of the Member, or the Member's Health Care Provider; and
e. the most appropriate source or level of service that can safely be provided to the Member. When applied to hospitalization, this further means that the Member requires acute care as an inpatient due to the nature of the services rendered or the Member's condition, and the Member cannot receive safe or adequate care as an outpatient.

Medicaid Business Segment
Medically Necessary — A service, item, procedure, or level of care that is necessary for the proper treatment or management of an illness, injury, or disability is one that:

- Will, or is reasonably expected to, prevent the onset of an illness, condition, injury or disability.
- Will, or is reasonably expected to, reduce or ameliorate the physical, mental or developmental effects of an illness, condition, injury or disability.
- Will assist the Member to achieve or maintain maximum functional capacity in performing daily activities, taking into account both the functional capacity of the Member and those functional capacities that are appropriate for Members of the same age.

Genetic Syndromes
Description:

General Indications: Genetic testing for inheritable diseases, offered in a setting with appropriately trained health care professionals who can provide pre- and post-test counseling, and performed by a qualified laboratory, is considered to be medically necessary when:

- Based on family history, pedigree analysis, risk factors, and / or signs or symptoms, there is a reasonable expectation that a genetically inherited condition exists; and
- The testing methodology is considered a proven method for the identification of a genetically-linked disease; and
- The test results will guide disease treatment decisions or prevention strategies.

Connective Tissue Disorders

Marfan Syndrome Loeys-Dietz Syndrome, Ehlers-Danlos Syndrome
Genetic testing may be considered medically necessary when:

- There is a known family pathogenic variant; **or**
- The member presents with signs and symptoms consistent with Marfan syndrome Loeys-Dietz Syndrome, or Ehlers-Danlos Syndrome but a definitive diagnosis cannot be established.

And

- Targeted mutation testing limited to 1 or more of the following is planned: *FBN1, MYH11, ACTA2, COL3A1, SLC2A10, SMAD3, MYLK, TGFBR1, and TGFBR2*

Pediatric-Onset genetic syndromes

Tay-Sachs disease:
Genetic testing of the HEXA gene may be considered medically necessary when there is a high degree of clinical suspicion for Tay-Sachs disease, otherwise, panel testing is otherwise a more effective approach for evaluation of progressive weakness or motor decline.

If Tay-Sachs is suspected based on clinical features:

1. Enzyme testing of HEX A and HEX B is recommended as a first line test.
2. In pregnant women or women taking oral contraceptives, enzyme testing should be performed on leukocytes; serum testing has increased chances of false positives.
3. If there is no or extremely low HEX A, proceed to HEXA gene sequencing

4. If there is residual enzyme activity, recommend panel testing that includes HEXA and other genes involved in progressive neuromuscular decline.

One or more of the following criteria must be met:

- Symptomatic member with clinical features suggestive of TSD AND abnormal HEX A or HEX B enzymatic testing, but after conventional studies a definitive diagnosis remains uncertain.
- To detect a pseudodeficiency allele in an asymptomatic member with abnormal HEX A or HEX B enzymatic testing
- Member with a first or second-degree relative with a confirmed TSD or variant

Cystic Fibrosis

Genetic testing of the *CFTR* gene may be considered medically necessary when one or more of the following criteria are met:

- Member with a negative sweat test who exhibit symptoms of CF
- Member with clinical features suggestive of CF with prior negative or uninformative genotyping
- Male members with congenital bilateral absence of the vas deferens
- Infant members with a positive newborn screening test, or symptoms consistent with CF and are too young to accomplish a sweat chloride test

Spinal Muscular Atrophy:

Diagnostic genetic testing of SMN1 and/or SMN2 may be considered medically necessary in members with:

- hypotonia and weakness (symmetrical but proximal greater than distal); and
- abnormal deep tendon reflexes (severely decreased or absent)

OR

- an asymptomatic neonate when the member's parents when one or both are known carriers

Hemoglobinopathies (Sickle Cell Anemia, Alpha- Beta thalassemia)

Genetic testing may be considered medically necessary when one or more of the following criteria are met:

- Hemoglobinopathy is suspected based on abnormal complete blood count AND hemoglobin electrophoresis is complete.
- Family history of sickle cell disease or trait, alpha thalassemia, beta thalassemia, or other hemoglobinopathy with known mutation

Duchenne muscular dystrophy/Becker muscular dystrophy Please refer to MP378: Genetic Testing for Neuromuscular Disorders

Neimann – Pick Disease:

Genetic testing for SMPD1 and NPC1 gene may be considered medically necessary in either of the following populations:

- Symptomatic members with clinical features suggestive of NPD and abnormal biochemical testing, but a definitive diagnosis remains uncertain after completion of conventional studies.
- First- or second-degree relative members with the capacity and desire to reproduce once the mutations have been identified in the proband.

Primary Dystonia Type 1:

Genetic testing for DYT1 gene sequence variants may be considered medically necessary in either of the following populations:

- Members with documented onset of primary dystonia at or before age 30 years
- Members with documented onset of primary dystonia at age 30 years or later with a relative who developed dystonia at 30 years or younger

Gaucher disease

Genetic testing may be considered medically necessary as follows:

Diagnostic Testing for Symptomatic members:

- Glucosylceramidase enzyme activity in peripheral blood leukocytes is 0 - 15% of normal activity, and
    - bone changes including osteopenia, focal lytic or sclerotic bone lesions or osteonecrosis; or
    - Liver/spleen enlargement and anemia or thrombocytopenia; or
    - Primary neurologic disease including one or more of the following:
        - cognitive impairment,
        - pyramidal signs (e.g., spasticity, hyperactive reflexes)

- bulbar signs (e.g., dysphagia, dysarthria, dysphonia, etc)
- eye movement disorders,
- seizures

Diagnostic Testing for members who are Asymptomatic Carriers:

- a mutation is detected by targeted mutation analysis, and
- Glucosylceramidase enzyme activity in peripheral blood leukocytes is 0-15% of normal activity,

Fragile X syndrome

Genetic testing may be considered medically necessary when one or more of the following criteria are met:

- Members of either sex with intellectual disability, developmental delay or autism spectrum disorder
- Members seeking reproductive counseling who have a family history of fragile X syndrome or a family history of undiagnosed intellectual disability
- Prenatal testing of fetuses in pregnant members who are known carriers
- Affected members who have had a positive cytogenetic fragile X test result who are seeking further counseling related to the risk of carrier status
- Members with unexplained ovarian insufficiency or failure or an elevated follicle-stimulating hormone level before the age of 40

Neurofibromatosis type 1 and 2

Genetic testing for neurofibromatosis type 1 may be considered medically necessary when the diagnosis is clinically suspected due to signs of disease, but a definitive diagnosis cannot be made without genetic testing.
The member must meet one of the following:

- A first-, second- or third-degree relative has a known NF mutation; or
- A first-, second- or third-degree relative has been diagnosed with neurofibromatosis but whose genetic status is unavailable

Or

The member meets at least two of the following criteria:

- six or more light brown spots on the skin ("cafe-au-lait" spots), measuring more than 5 mm in diameter in children or more than 15 mm across in adolescents and adults;
- two or more neurofibromas, or one plexiform neurofibroma (a neurofibroma that involves many nerves);
- freckling in the area of the armpit or the groin;
- two or more growths on the iris of the eye (Lisch nodules or iris hamartomas);
- a tumor on the optic nerve (optic nerve glioma);
- abnormal development of the spine (scoliosis), the temple (sphenoid) bone of the skull or the tibia;
- a parent, sibling or child with NF1

Genetic testing for neurofibromatosis type 2 is medically necessary when the diagnosis is clinically suspected due to signs of disease, but a definitive diagnosis cannot be made without genetic testing. The member must meet one of the following criteria:

- Members with a first degree relative with NF2 (i.e., affected parent, sibling or offspring)
- Multiple spinal tumors (schwannomas, meningiomas)
- Cutaneous schwannomas
- Sporadic vestibular schwannoma less than 30 years of age, or spinal tumor or meningioma less than 20 years of age
- Unilateral vestibular schwannoma in those less than 20 years of age

Rett syndrome:

Genetic testing may be considered medically necessary when:

- The member meets the clinical diagnostic criteria for Rett syndrome; and
- Gene testing is necessary to confirm diagnosis due to clinical uncertainty

Prader-Willi Syndrome

Genetic testing may be considered medically necessary in symptomatic pediatric members for diagnosis of Prader-Willi syndrome or in symptomatic adult members when all of the following criteria are met:

- Documented history of hypotonia and poor suck
- Global developmental delay

Angelman Syndrome

Genetic testing to confirm the absence of maternally expressed gene(s) located on chromosome 15 within bands q11.2 to q13 may be considered medically necessary in symptomatic pediatric members for diagnosis of Angelman Syndrome or in symptomatic adult members when all of the following criteria are met:

- Documentation of absence of major birth defects with normal head circumference
- Evidence of developmental delay by age 6 to 12 months
- Delayed progression and attainment of developmental milestones without overall loss of skills
- Normal metabolic, hematologic and chemical laboratory studies
- Normal brain structure as evidenced by CT or MRI
- Absent or severely impaired speech
- Balance disorder with ataxia or tremulous movement of limbs

Documentation of behavioral characteristics such as inappropriate happy demeanor, frequent and inappropriate laughter or smiling, short attention span, excitability, hand-flapping, or hypermotor activity

Noonan Syndrome:

Genetic testing by via panel may be considered medically necessary when:
The member is suspected of Noonan syndrome due to a combination of **any** of the following:

- A characteristic facial appearance.
- Short stature.
- Heart defect present at birth (congenital heart defect).
- A broad or webbed neck.
- Minor eye problems such as strabismus in up to 95 percent of individuals.
- Bleeding problems such as a history of abnormal bleeding or bruising.
- An unusual chest shape with widely-spaced and low set nipples.
- Developmental delay of varying degrees, but usually mild.
- Undescended testes
- There is a known family history of TPN11, SOS1, RADF1 and KRAS gene mutation

Adult-Onset genetic syndromes

Hereditary Hemochromatosis

1. Genetic testing to confirm a diagnosis of hereditary hemochromatosis should start with HFE genotyping for 3 common variants: C282Y, H63D, S65C.
2. If results are negative, or if carrier status only is identified after testing for three common variants, then sequencing with deletion/duplication analysis with single gene or panel testing, dependent upon clinical presentation, is considered medically necessary for the member.

Genetic testing should be considered medically necessary in individuals with one or more of the following clinical features:

- Serum transferrin saturation >45% at any age
- Serum ferritin concentration value of >300 ng/mL in men and >200 ng/mL in women at any age
- Known family history of hemochromatosis in a first, second or third degree relative
- Known carrier status of HFE-related hemochromatosis in at least one first, second or third degree relative

Cerebral autosomal dominant arteriopathy with subcortical infarcts and leukoencephalopathy (CADASIL):

Genetic testing to confirm the diagnosis of CADASIL syndrome may be considered medically necessary when:

- Clinical signs, symptoms and imaging results indicate the pre-test probability of CADASIL is moderate to high (total score of 14)*; or
- The diagnosis of CADASIL is inconclusive following alternate methods of testing, including MRI and skin biopsy

Features	***Points***
Migraine	*1*
Migraine with aura	*3*
Psychiatric disturbance	*1*
Transient ischemic attack/stroke	*1 (2 if <50yo)*
Subcortical infarcts	*2*
Cognitive decline	*3*
LE (leukoencephalopathy)	*3*

LE extended to temporal pole	*1*
LE extended to external capsule	*5*

Pooled Frequency of Clinical and Radiologic Features (Pescini et al., 2012)

Charcot-Marie-Tooth: Please refer to MP378: Genetic Testing for Neuromuscular Disorders

Alpha-1-antitrypsin deficiency:
Genetic testing for alpha-1 antitrypsin deficiency may be considered medically necessary when the member meets either criteria 1 or 2, and 3.

Note, genotyping by protease inhibitor (PI) testing (eg isoelectric focusing of serum) should be performed first. Sequencing of *SERPINA1* is only medically necessary when there is a high degree of suspicion for alpha-1 antitrypsin deficiency after negative of inconclusive PI testing.

1. alpha-1 antitrypsin deficiency suspected based on clinical features:
    - COPD, regardless of age or ethnicity
    - Bronchiectasis of unknown etiology; or
    - Chronic liver disease of unknown etiology; or
    - Anti-proteinase 3-positive vasculitis; or
    - Necrotizing panniculitis
    - Neonatal cholestasis
2. Member has a family history of a 1st, 2nd, or 3rd degree relative with alpha-1 antitrypsin deficiency
   AND
3. Member had prior PI testing +/-serum alpha-1 antitrypsin level in the range of severe deficiency

Phenotype	AAT Blood Level
MM	20–53 µM | 150–350 Mg/dL
MZ	12–28 µM | 90–210 Mg/dL
SS	13–27 µM | 100–210 Mg/dL
SZ	10–16 µM | 75–120 Mg/dL
ZZ	2.5–7 µM | 20–45 Mg/dL
NULLNULL	0 µM | 0 Mg/dL

Huntington's disease – Please refer to MP378: Genetic Testing for Neuromuscular Disorders

Familial Hyperparathyroidism: Genetic testing for hereditary causes of parathyroid disease is medically necessary in the following scenarios:
- Primary hyperparathyroidism (pHPT) with age of onset <45y
- pHPT in the member at any age with at least one family member with pHPT
- pHPT AND an ossifying fibroma of the jaw
- diagnosis of a parathyroid carcinoma at any age
- childhood onset ossifying fibroma of the jaw, maxilla, or mandible

Note: A complete description of the process by which a given technology or service is evaluated and determined to be experimental, investigational or unproven is outlined in MP 15 - Experimental Investigational or Unproven Services or Treatment.

Medicaid Business Segment:
Any requests for services, that do not meet criteria set in the PARP, may be evaluated on a case-by-case basis.

EXCLUSIONS:
Note: A complete description of the process by which a given technology or service is evaluated and determined to be experimental, investigational or unproven is outlined in MP 15 - Experimental Investigational or Unproven Services or Treatment.

Medicaid Business Segment:
Any requests for services, that do not meet criteria set in the PARP, may be evaluated on a case by case basis.

CODING ASSOCIATED WITH: Genetic Testing for Inheritable Diseases
The following codes are included below for informational purposes and may not be all inclusive. Inclusion of a procedure or device code(s) does not constitute or imply coverage nor does it imply or guarantee provider

reimbursement. Coverage is determined by the member specific benefit plan document and any applicable laws regarding coverage of specific services. Please note that per Medicare coverage rules, only specific CPT/HCPCS Codes may be covered for the Medicare Business Segment. Please consult the CMS website at www.cms.gov ***or the local Medicare Administrative Carrier (MAC) for more information on Medicare coverage and coding requirements.***

81161 DMD (dystrophin) (eg, Duchenne/Becker muscular dystrophy) deletion analysis, and duplication analysis, if performed
81171 AFF2 (AF4/FMR2 family, member 2 [FMR2]) (eg, fragile X mental retardation 2 [FRAXE]) gene analysis; evaluation to detect abnormal (eg, expanded) alleles
81172 AFF2 (AF4/FMR2 family, member 2 [FMR2]) (eg, fragile X mental retardation 2 [FRAXE]) gene analysis; characterization of alleles (eg, expanded size and methylation status)
81200 ASPA (aspartoacylase) (e.g., Canavan disease) gene analysis, common variants (e.g., E285A, Y231X)
81205 BCKDHB (branched-chain keto acid dehydrongenase E1, beta polypeptide) (e.g., Maple syrup urine disease) gene analysis, common variants (E.g., R183P, G278S, E422X)
81209 BLM (Bloom syndrome, recq helicase-like) (e.g., Bloom syndrome) gene analysis, 2281DEL6INS7 Variant
81220 CFTR Gene Mutation Analysis
81242 FANCC (Fanconi anemia, complementation group
81243 FMR1 (fragile X mental retardation 1 (e.g., fragile X mental retardation) gene analysis; evaluation to detect abnormal (e.g., expanded) alleles
81244 FMR1 (fragile X mental retardation 1) (e.g., fragile X mental retardation) gene analysis; characterization of alleles (e.g., expended size and methylation status)
81250 G6PC (glucose-6-phosphatase, catalytic subunit) (e.g., glycogen storage disease, type 1A, Von Gierke disease) gene analysis, common variants (e.g., R83C, Q347X)
81251 GBA (glucosidase, beta, acid) (e.g., Gaucher disease) gene analysis, common variants (e.g., N370S, 84GG, L444P, IVS2+1G>A)
81255 HEXA (hexosaminidase A [alpha polypeptide]) (e.g., Tay-Sachs disease) gene analysis, common variants (e.g., 1278INSTATC, 1421+1G>C, G269S)
81256 HFE (hemochromatosis) (e.g., hereditary hemochromatosis) gene analysis, common variants (e.g.,C282Y, H63D)
81257 HBA1/HBA2 (alpha globin 1 and alpha globin 2) (e.g., alpha thalassemia, Hb Bart hydrops fetalis syndrome, HbH disease), gene analysis, for common deletions or variant (e.g., southeast Asian, Thai, Filipino, Mediterranean, alpha 3.7, alpha 4.2, alpha 20.5, and constant spring)
81258 known familial variant
81259 full gene sequence
81260 IKBKAP 9inhibitor of kappa light polypeptide gene enhancer in B-cells, kinase complex-associated protein) (e.g., familial dysautonomia) gene analysis, common variants (e.g., 2507+6T>C, R696P)
81290 MCOLN1 (mucolipin 1) (e.g. mucolipidosis, type IV) gene analysis, common variants (e.g., IVS3 2A>G, del 6.4kb)
81302 MECP2 (methyl CPG binding protein 2) (e.g., Rett syndrome) gene analysis; full sequence analysis
81303 MECP2 (methyl CPG binding protein 2) (e.g., Rett syndrome) gene analysis; known familial variant
81304 MECP2 (methyl CPG binding protein 2) (e.g., Rett syndrome) gene analysis; duplication/deletion variants
81324 PMP22 (peripheral myelin protein 22) (eg, Charcot-Marie-Tooth, hereditary neuropathy with liability to pressure palsies) gene analysis; duplication/deletion analysis
81325 PMP22 (peripheral myelin protein 22) (eg, Charcot-Marie-Tooth, hereditary neuropathy with liability to pressure palsies) gene analysis; full sequence analysis
81326 PMP22 (peripheral myelin protein 22) (eg, Charcot-Marie-Tooth, hereditary neuropathy with liability to pressure palsies) gene analysis; known familial variant
81329 Smn1 (Survival Of Motor Neuron 1, Telomeric) (Eg, Spinal Muscular Atrophy)
81330 SMPD1 (sphingomyelin phosphodiesterase 1, acid lysosomal) (e.g., Neimann-Pick disease, type A) gene analysis; common variants (e.g., R496L, L302P, FSP330) **(Non-covered for Medicare - LCD A53624)**
81331 SNRPN/UBE3A (small nuclear ribonucleoprotein polypeptide N and ubiquitin protein ligase E3A) (e.g., Prader-Willi syndrome and/or Angelman syndrome), methylation analysis
81332 SERPINA1 (serpin peptidase inhibitor, clade A, alpha-1 antiproteinase, antitrypsin, member 1) (e.g., alpha-1-antitrypsin deficiency), gene analysis, common variants (e.g., *S and *Z)
81361 HBB (hemoglobin subunit bets), sickle cell anemia, beta thallasemia, hemoglobinopathy, common variants
81362 known familial variants
81363 duplication/deletion variants
81364 full gene sequence

81400 Molecular pathology procedure Level 1 (SMN1 exon7 deletion)
81401 Molecular pathology procedure Level 2 (HTT Expansion Analysis; SMN1/SMN2)
81402 Chromosome 15 Uniparental Disomy
81403 Molecular pathology procedure Level 4 (BLM Known Familial Mutation Analysis; SMN1 known familial sequence variants)
81404 Tier 2, Level 5 molecular pathology
81405 Tier 2, Level 6 molecular pathology
81406 Tier 2, Level 7 molecular pathology
81408 Molecular pathology procedure Level 9 (FBN1, eg, Marfan syndrome)
81410 Aortic dysfunction or dilation (e.g., Marfan Syndrome, Loeys-Dietz Syndrome, Ehler-Danlos Syndrome type IV, arterial tortuosity syndrome); genomic sequence analysis panel, must include sequencing of at least 9 genes, including FBN1, TGFBR1, TGFBR2, COL3A1, MYH11, ACTA2, SLC2A10, SMAD3, and MYLK
81411 Aortic dysfunction or dilation (e.g., Marfan Syndrome, Loeys-Dietz Syndrome, Ehler-Danlos Syndrome type IV, arterial tortuosity syndrome); duplication/deletion analysis panel, must include analyses for TGFBR1, TGFBR2, MYH11, AND COL3A1
81412 Ashkenazi Jewish associated disorders (eg, Bloom syndrome, Canavan disease, cystic fibrosis, familial dysautonomia, Fanconi anemia group C, Gaucher disease, Tay-Sachs disease), genomic sequence analysis panel, must include sequencing of at least 9 genes, including ASPA, BLM, CFTR, FANCC, GBA, HEXA, IKBKAP, MCOLN1, and SMPD1
81425 genome sequence analysis
81426 each comparator genome
81427 re-evaluation of previously obtained genome sequence
81442 Noonan spectrum disorders, genomic sequence analysis panel, must include sequencing of at least 12 genes including, BRAF, CBL, HRAS, KRAS, MAP2K1, MAP2K2, NRAS, PTPN11, RAF1, RIT1, SHOC2, and SOS1
81443 Genetic testing for severe inherited conditions (e.g., cystic fibrosis, Ashkenazi Jewish-associated disorders [e.g., Bloom syndrome, Canavan disease, Fanconi anemia type C, mucolipidosis type VI, Gaucher disease, Tay-Sachs disease], beta hemoglobinopathies, phenylketonuria, galactosemia), genomic sequence analysis panel, must include sequencing of at least 15 genes (e.g., ACADM, ARSA, ASPA, ATP7B, BCKDHA, BCKDHB, BLM, CFTR, DHCR7, FANCC, G6PC, GAA, GALT, GBA, GBE1, HBB, HEXA, IKBKAP, MCOLN1, PAH).
81448 Hereditary peripheral neuropathies (eg, Charcot-Marie-Tooth, spastic paraplegia), genomic sequence analysis panel, must include sequencing of at least 5 peripheral neuropathy-related genes (eg, BSCL2, GJB1, MFN2, MPZ, REEP1, SPAST, SPG11, SPTLC1)
0206U Neurology (Alzheimer disease); cell aggregation using morphometric imaging and protein kinase C-epsilon (PKCe) concentration in response to amylospheroid treatment by ELISA, cultured skin fibroblasts, each reported as positive or negative for Alzheimer disease
0207U Quantitative imaging of phosphorylated ERK1 and ERK2 in response to bradykinin treatment by in situ immunofluorescence, using cultured skin fibroblasts, reported as a probability index for Alzheimer disease (List separately in addition to code for primary procedure) (Use 0207U in conjunction with 0206U) (DISCERN™ Test)
0216U Neurology (inherited ataxias), genomic DNA sequence analysis of 12 common genes including small sequence changes, deletions, duplications, short tandem repeat gene expansions, and variants in non-uniquely mappable regions, blood or saliva, identification and categorization of genetic variants
0217U Neurology (inherited ataxias), genomic DNA sequence analysis of 51 genes including small sequence changes, deletions, duplications, short tandem repeat gene expansions, and variants in non-uniquely mappable regions, blood or saliva, identification and categorization of genetic variants
0218U Neurology (muscular dystrophy), DMD gene sequence analysis, including small sequence changes, deletions, duplications, and variants in non-uniquely mappable regions, blood or saliva, identification and characterization of genetic variants
0230U AR (androgen receptor) (eg, spinal and bulbar muscular atrophy, Kennedy disease, X chromosome inactivation), full sequence analysis, including small sequence changes in exonic and intronic regions, deletions, duplications, short tandem repeat (STR) expansions, mobile element insertions, and variants in non-uniquely mappable regions
0234U MECP2 (methyl CpG binding protein 2) (eg, Rett syndrome), full gene analysis, including small sequence changes in exonic and intronic regions, deletions, duplications, mobile element insertions, and variants in non-uniquely mappable regions
0236U SMN1 (survival of motor neuron 1, telomeric) and SMN2 (survival of motor neuron 2, centromeric) (eg, spinal muscular atrophy) full gene analysis, including small sequence changes in exonic and intronic regions, duplications and deletions, and mobile element insertions
0448U Carrier screening for severe inherited conditions (eg, cystic fibrosis, spinal muscular atrophy, beta hemoglobinopathies [including sickle cell disease], alpha thalassemia), regardless of race or self-identified ancestry, genomic sequence analysis panel, must include analysis of 5 genes (CFTR, SMN1, HBB, HBA1, HBA2)

0449U Carrier screening for severe inherited conditions (eg, cystic fibrosis, spinal muscular atrophy, beta hemoglobinopathies [including sickle cell disease], alpha thalassemia), regardless of race or self-identified ancestry, genomic sequence analysis panel, must include analysis of 5 genes (CFTR, SMN1, HBB, HBA1, HBA2)

LINE OF BUSINESS:
Eligibility and contract specific benefits, limitations and/or exclusions will apply. Coverage statements found in the line of business specific benefit document will supersede this policy. For Medicare, applicable LCD's and NCD's will supercede this policy. For PA Medicaid Business segment, this policy applies as written.

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This policy will be revised as necessary and reviewed no less than annually**.**

Devised: 7/23

Revised: 7/24 (add criteria for Familial Hyperparathyroidism); 9/24 (move neuromuscular disease criteria to MP 378)

Reviewed:

CMS UM Oversight Committee Approval: 12/23; 11/8/24