Testing for Genetic Disease

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Disclaimer

Highmark Health Options medical policy is intended to serve only as a general reference resource regarding coverage for the services described. This policy does not constitute medical advice and is not intended to govern or otherwise influence medical decisions.

POLICY STATEMENT

Highmark Health Options may provide coverage under medical surgical benefits of the Company's Medicaid products for medically necessary testing for genetic disease.

This policy is designed to address medical necessity guidelines that are appropriate for the majority of individuals with a particular disease, illness or condition. Each person's unique clinical circumstances warrant individual consideration, based upon review of applicable medical records.

The qualifications of the policy will meet the standards of the National Committee for Quality Assurance (NCQA) and the Delaware Department of Health and Social Services (DHSS) and all applicable state and federal regulations.

DEFINITIONS

Highmark Health Options (HHO) – Managed care organization serving vulnerable populations that have complex needs and qualify for Medicaid. Highmark Health Options members include individuals and families with low income, expecting mothers, children, and people with disabilities. Members pay nothing to very little for their health coverage. Highmark Health Options currently services Delaware Medicaid: Delaware Healthy Children Program (DHCP) and Diamond State Health Plan Plus members.

Biochemical Genetic Test – Diverse spectrum of laboratory analysis of biomolecules (metabolites, enzyme activities and functional assays) in serum or tissue to detect inborn errors of metabolism, genotype or mutations for clinical purposes (e.g., predict risk of disease, identify carriers and establish prenatal or clinical diagnoses or prognosis).

Genetic Testing – Genetic testing requires the analysis of human chromosomes, DNA (deoxyribonucleic acid), RNA (ribonucleic acid), genes or gene products in order to detect or predict risk of inherited or non-inherited genetic variants related to disease, identify carriers, establish prenatal and clinical diagnosis or prognosis.

Carrier Testing – Carrier testing is used to determine whether an individual possesses one copy of a gene mutation that, when present in two copies, causes a genetic disorder. This type of testing is offered to individuals who have a family history of a genetic disorder and to people in certain ethnic groups with an increased risk of specific genetic conditions.

Genetic Counseling – The process in which a specially trained professional evaluates family history, medical records, and genetic test results, in the risk assessment of an individual for genetic disease, understanding the limitations and risks of genetic testing.

Genetic Screening – Genetic testing used to identify individuals who do not currently exhibit signs or symptoms but may have an increased risk of developing or transmitting a specific genetic disorder.

Genetic Screening Panels – Screening panels are a grouping of genetic tests that are performed for multiple conditions such as the Ashkenazi Jewish Panel.

Diagnostic/Confirmatory Testing in Symptomatic Individuals – Genetic testing that is performed to rule out, identify, or confirm a suspected genetic disorder in an affected individual.

Direct Risk – When there is documentation in the family history of a disorder that involves an autosomal dominant inheritance which has been demonstrated in either the mother or the father or evidence of a disorder inherited in an autosomal recessive or X-linked recessive manner with supporting documentation suggestive of family history of a suspected disorder.

PROCEDURES

A prior authorization is required.

When Highmark Health Options does not have a specific medical guideline for genetic testing, the following medical necessity criteria must be met:

- A complete history, physical examination, family history and pedigree analysis, laboratory, imaging and other diagnostic testing, and a specific medical differential diagnosis has been established; AND
- The results of the genetic testing will have a direct impact on the plan member's care/treatment plan, including the determination of the intensity of surveillance or initiate new course of treatment of that disease or altering an existing therapy; AND
- The member is at direct risk of inheriting the genetic mutation (pre-symptomatic) as determined on review of family history and risk factors (carrier identification); AND
- The genetic disorder is associated with the potential for significant disability or has a lethal natural history; OR The member displays clinical features as documented in the physical exam and conventional testing are inconclusive and a definitive diagnosis is uncertain (diagnostic); AND
- The member has not had like or similar genetic testing previously. This does not apply to requests for comprehensive genetic testing when targeted testing has been previously performed; AND
- The providing laboratory is approved by the FDA and/or other professional or governmental agencies; AND
- The information from the genetic testing is expected to make an impact on the member's treatment plan or the responsible family member/legal guardian intends to use the information in making decisions about his/her care or treatment plan; AND
- The specific mutation or set of mutations has been established in the scientific literature as a reliable test associated with the disease; AND

- Peer reviewed literature is available that provides evidence for the indications and performance of the testing this policy is to be used in situations in which there is an absence of a medical policy.
- For tissue-specific or tumor testing the following criteria must be met:
  - The patient is a candidate for targeted drug therapy associated with a specific genetic mutation; AND
  - There is an established positive association of a specific gene mutation in response to a particular drug therapy

Note: When available, please reference the separate Highmark Health Options medical policies for specific genetic tests.

Documentation Requirements

- A physician order for the specific genetic test being requested; AND
- Name of the laboratory performing the testing; AND
- Name and description of the genetic testing; AND
- CPT codes that will be billed for the genetic testing; AND
- Complete history and physical and/or consultation notes that address the following:
  - Necessity of the test to be performed
  - Symptoms and/or test results related to need for specific genetic testing
  - Family history when applicable
  - Explanation of the impact of genetic testing results in clinical care decision making

When services are not covered

- For conditions other than those listed above since the scientific evidence has not been established.
- Generally, genetic testing for a particular disease should be performed once per lifetime; however, there are rare circumstances in which testing may be performed more than once in a lifetime (e.g., previous testing methodology is inaccurate, or a new discovery has added significant relevant mutations for a disease).
- Direct-to-consumer testing including but not limited to ‘in-home’ test kits or genetic tests order by plan member over the phone or Internet.
- Genetic testing of children to predict adult-onset diseases is considered not medically necessary unless test results will guide current decisions concerning prevention which would be lost by waiting until the member has reached adulthood.
- Genetic testing or gene mapping in the screening of the general population.
- Genetic testing is not covered when the clinical diagnosis can be made without the use of a genetic test.
- Genetic testing is not covered when the results of the testing would not change the diagnosis and/or management of the patient’s care (e.g., testing is performed for nonmedical reasons or the testing is not expected to provide a definitive diagnosis).

Genetic Counseling

Pre- and post-test genetic counseling is required to be performed by an independent (not employed by a genetic testing lab) genetic provider prior to genetic counseling for mutations. This service is necessary in order to inform persons being tested about the benefits and limitations of a specific genetic test for the specific patient. Genetic testing for mutation requires documentation of medical necessity from one of the following providers who has evaluated the member and intends to see the person after testing has been performed for counseling:

- Board Eligible or Board-Certified Genetic Counselor
- Advanced Genetics Nurse
- Genetic Clinical Nurse
- Advanced Practice Nurse in Genetics
- Board Eligible or Board-Certified Clinical Geneticist
- A physician with experience in cancer genetics
- A physician specializing in the care for the indication(s) for genetic testing

GOVERNING BODIES APPROVAL

The FDA has only regulated a relatively small number of genetic tests sold to laboratories as kits. In 2010, the FDA announced plans to expand regulation to all genetic tests, this expansion has yet to take place (as of April 19, 2016).

Most of the genetic testing are laboratory developed tests that do not require premarket approval by the FDA. These types of tests are regulated under the Clinical Laboratory Improvement Amendments (CLIA) Act of 1998. The regulations of the CLIA Amendments do not include validation of specific test but rather there is procedural compliance.

Additional information available at:
http://www.fda.gov/MedicalDevices/DeviceRegulationandGuidance/Overview/default.htm

Post-payment Audit Statement

The medical record must include documentation that reflects the medical necessity criteria and is subject to audit by Highmark Health Options at any time pursuant to the terms of your provider agreement.

Place of Service: Outpatient

REIMBURSEMENT

Participating facilities will be reimbursed per their Highmark Health Options contract.

SUMMARY OF LITERATURE

General Genetic Testing

As medical technology continues to advance, it is not surprising that there is parallel advancement and utilization of genetic testing. Due to the rapidly evolving field of genetic testing, every genetic test must be thoroughly evaluated to determine whether the identified genetic mutation represents a genetic disorder.

There are four categories of genetic testing: predictive, diagnostic, prognostic and therapeutic. The testing is conducted using several methods that include: molecular genetic tests that analyze single genes or short lengths of DNA to identify variations or mutations tied to specific genetic disorder; chromosomal genetic tests where the whole chromosome of long lengths of DNA are examined to identify large genetic changes; and biochemical genetic tests which measure the activity level or amount of specific proteins, metabolites or enzymes that can be indicative of changes to the DNA which may result in a genetic disorder (NLM 2016). Biochemical genetic tests analyze gene products (proteins) and microscopic analysis of stained chromosomes. For some diseases, such as Tay-Sachs, use of biochemical genetic testing can detect more cases than standard DNA testing alone.

The American College of Medical Genetics recommends that genetic testing should only be requested by a qualified health care professional who is responsible for both ordering and interpreting the genetic tests as well as pretest and post-test counseling of individuals and families regarding the medical significance of the test results and the need for follow-up, if any.

The 2015 NCCN guidelines for genetic counseling contain counseling services divided into pre-test and post-test categories.

The pre-test counseling requirements include:

- Collection of a comprehensive family history (close blood relatives include first-, second- and third-degree relatives on each side of the family).
- Evaluation of a patient's cancer risk.
- Generation of a differential diagnosis and education of the patient on inheritance patterns, penetrance, variable expressivity, and the possibility of genetic heterogeneity.

Post-test counseling includes:

- Providing results along with their significance and impact and recommended medical management options.
- Informing and testing at-risk family members.
- Providing available resources such as disease specific support groups and research studies.

The National Society of Genetic Counselors (NSGC) has recommended that genetic testing be performed utilizing the informed decision-making process (Berliner et al., 2013). Issues included in this process should include the following:

- Obtaining all pertinent personal medical and family history data
- Psychosocial assessment
- Discussion of cancer and mutation risk and how personalized risk estimates are derived
- Facilitation of the informed consent process through discussion of the risks, benefits, limitations, and likelihood of identifying a mutation with genetic susceptibility testing
- Result disclosure, when appropriate
- Discussion of medical management options
- Review of issues related to genetic discrimination

There are limitations to the testing of genetic and molecular diseases. According to the American College of Medical Genetics and Genomics (2017), there are 5 key things patients and providers should question regarding genetic testing, including:

1. Do not order a duplicate genetic test for an inherited condition unless there is uncertainty about the validity of the existing test result.
2. Do not order APOE genetic testing as a predictive test for Alzheimer disease.
3. Do not order MTHFR genetic testing for the risk assessment of hereditary thrombophilia.
4. Do not order HFE genetic testing for a patient without iron overload or a family history of HFE-associated hereditary hemochromatosis.
5. Do not order exome or genome sequencing before obtaining informed consent that includes the possibility of secondary findings.

Direct-to-Consumer Genetic Testing

Usually, genetic testing is available through health care providers. These providers order appropriate genetic tests from a qualified laboratory and interprets the results. Recently direct-to-consumer genetic testing has become available as seen on television, printed advertisements, and the internet. However, direct-to-consumer (DTC) genetic testing raises scientific, ethical, and regulatory questions. The European Academies of Science Advisory Council (EASAC) and the Federation of European Academies of Medicine (FEAM) have recommended developing general principles for the governance of DTC services which includes establishing scientific validity, extending quality control, supervising disclosure of information, understanding, and addressing consequences for health systems and clarifying research use. In addition, there are key issues for consumer protection in DTC services include: information provision, analytical validity, scientific and clinical validity, access to advice and control of claims (Fears et al. 2013).

Consumers may be misled by results of DTC testing if the results are unproven or the testing is invalid. Consumer treatment decisions may be based on inaccurate, incomplete, or misunderstood information without the guidance of a trained healthcare provider. More research is needed to fully understand the benefits and limitations of DTC.

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POLICY UPDATE HISTORY

08/19/2021	Approved in Medical Policy Committee
01/24/2022	Annual review of policy.