STATE OF IOWA DEPARTMENT OF
Health AND Human
SERVICES

Genetic Testing
(excludes BRCA testing and 21-gene RT PCR assays that are covered using NCCN guidelines under separate criteria)
LAB-003

Iowa Medicaid Program:	Prior Authorization	**Effective Date:**	1/21/2011
Revision Number:	10	**Last Rev Date:**	4/19/2024
Reviewed By:	Medicaid Medical Director	**Next Rev Date:**	4/18/2025
Approved By:	Medicaid Clinical Advisory Committee	**Approved Date:**	6/4/2018

Criteria

These criteria may not apply to testing for familial cancer syndromes. Separate criteria are used for BRCA 1 and 2 testing and the 21-gene RT-PCR assays. Other tests for familial cancer syndromes will be subject to criterion 1-6 below, but will also be assessed for consistency with best medical practice. Criteria published by the National Cancer Care Network (NCCN) and the Centers for Medicare and Medicaid Services may apply to the evaluation of testing for familial cancer syndromes, when available.

Genetic testing is considered medically necessary to establish a molecular diagnosis of an inheritable disease when **ALL** the following are met:

1. The member displays clinical features or phenotype of a defined genetic condition; **AND**
2. The testing is necessary to establish a diagnosis for symptoms/conditions of unknown etiology; **AND**
3. The result of the test will directly impact the clinical decision-making or clinical outcome for the member; **AND**
4. The testing method is considered scientifically valid for the identification of a specific genetic condition; **AND**
5. Documentation is provided from a genetic counselor or physician with genetic expertise (e.g., medical geneticist, pediatric neurologist, developmental pediatrician) who supports the recommendation for testing based on a review of risk factors, clinical scenario, and family history **AND** that appropriate genetic counseling has been delivered.
6. For testing codes noted below, all relevant coverage criteria need to be met.

Coverage Criteria - 81228

Cytogenomic Constitutional (Genome-Wide) Microarray Analysis; Interrogation of Genomic Regions for Copy Number Variants (e.g., bacterial artificial chromosome [BAC] or oligo-based comparative genomic hybridization [CGH] Microarray Analysis).

1. BAC or oligo-based CMA is considered medically necessary for **ONE** or more of the following medical indications:
    a. Multiple congenital anomalies, other than those associated with an obvious, specific, and well-defined genetic syndrome. After history, physical examination, pedigree analysis, genetic counseling, and completion of conventional diagnostic studies, a definitive diagnosis remains uncertain; **OR**
    b. Developmental delay (DD) or intellectual disability (ID) when **ALL** of the following are met:
        1) There is no known etiology for the DD/ID (e.g., trauma or infection); **AND**
        2) The DD/ID is not suspected to be related to an obvious, specific, and well-defined genetic syndrome. After history, physical examination, pedigree analysis, genetic counseling, and completion of conventional diagnostic studies, a definitive diagnosis remains uncertain; **AND**
        3) The member shows evidence of at least one major or two or more minor congenital anomalies as defined above: **OR**
    c. Autism spectrum disorders when accompanied by at least one major or two or more minor congenital anomalies.

Coverage Criteria - 81229

Cytogenomic Constitutional (Genome-Wide) Microarray Analysis; Interrogation of Genomic Regions for Copy Number and Single Nucleotide Polymorphism (SNP) Variants for Chromosomal Abnormalities:

1. SNP microarray analysis is considered medically necessary for the indications listed for CPT 81228 above and is only covered when this testing has been non-diagnostic. If member has already had CPT 81228 performed, the member is only eligible for CPT 81229 if at least **ONE** of the following additional criteria is met:
2. Cosanguinity AND recessive disease are suspected; **OR**
3. Uniparental disomy (UPD – both copies of a chromosome inherited from a single parent) is suspected; **OR**
4. Another mechanism is suspected that would not be detected by the oligo microarray (81228).

Coverage Criteria - 81243

FMR1 (Fragile X mental retardation 1) gene analysis; evaluation to detect abnormal (e.g., expanded) alleles:

1. Fragile X carrier testing billed under code 81243 is not considered medically necessary for general population screening (e.g., screening in the absence of symptoms or family history).
    a. Fragile X diagnostic testing is considered medically necessary for males with unexplained ID, DD, or autism or in females with these conditions when strong clinical suspicion is documented due to phenotype or family history.
    b. Codes specific for members with high-risk pregnancies such as women older than 35 years of age or part of an ethnic or religious population known to carry a high risk of defective genes will be considered for approval where there is adequate documentation of their risk and the testing is specific for that risk.

General Guidelines

All genetic molecular testing must be conducted in a laboratory certified, at a minimum, under the Clinical Laboratory Improvement Amendments of 1988.

All genetic molecular testing must be accompanied by pre- and post-test genetic counseling with a physician or a certified genetic counselor, who discusses the possible risks and benefits of early detection and prevention modalities.

Genetic testing is not medically necessary to determine a specific diagnosis or syndrome when such diagnoses would not definitively alter the medical treatments of the member.

Genetic testing is not medically necessary to determine the likelihood of associated medical conditions occurring in the future when the diagnosis of the condition can be made by other testing.

Genetic testing is not medically necessary for the purposes of determining current or future family planning. Genetic testing is not covered for the purpose of investigating if a condition might affect the member's children or other family members if the diagnosis does not directly affect the medical treatment of the member.

Genetic testing is not medically necessary for members without a medical condition or at risk for any condition which can only be confirmed with genetic tests.

Definitions

- A **malformation** refers to abnormal structural development.
- A **major malformation** is a structural defect that has a significant effect on function or social acceptability (e.g., ventricular septal defect, a cleft lip).
- A **minor malformation** is a structural abnormality that has a minimal effect on function or societal acceptance (e.g., preauricular ear pit, partial syndactyly [fusion] of the second or third toes).
- A **syndrome** is a recognizable pattern of multiple malformations. Syndrome diagnoses are often relatively straightforward and common enough to be clinically recognized without specialized testing (e.g., Down's syndrome, neural tube defects, achondroplasia). However, in the very young, or in the case of syndromes with variable presentation, confident identification may be difficult without additional testing.

Coding

The following list of codes is provided for reference purposes only and may not be all inclusive. The inclusion of a code does not imply any right to reimbursement or guarantee claim payment, nor does the exclusion of a code imply that its association to the HCPCS/CPT code is inappropriate.

CPT	Description
81201	APC (adenomatous polyposis coli) gene analysis; full gene sequence.
81202	APC (adenomatous polyposis coli) gene analysis; known familial variants.
81203	APC (adenomatous polyposis coli) gene analysis; duplication/deletion variants.
81228	Cytogenetic constitutional (genome-wide) microarray analysis; interrogation of genomic regions for copy number variants.
81229	Interrogation of genomic regions for copy number and single nucleotide polymorphism (SNP) variants for chromosomal abnormalities.
81235	EGFR (epidermal growth factor receptor) gene analysis.
81243	FMR1 (Fragile X Mental Retardation 1) gene analysis.
81244	FMR1 (Fragile X Mental Retardation 1) gene analysis; characterization of alleles (e.g., expanded size and methylation status.
81253	GJB2 (gap junction protein, beta 2, 26kDA; connexin 26) gene analysis; known familial variants.
81254	GJB6 (gap junction protein, beta 6, 30kDa, connexin 30) gene analysis, common variants.
81321	PTEN (phosphatase and tensin homolog) gene analysis; full sequence analysis. (Cowden and Bannayan-Riley-Ruvalcaba Syndromes).
81322	PTEN (phosphatase and tensin homolog) gene analysis; known familial variant.
81323	PTEN (phosphatase and tensin homolog) gene analysis; duplication/deletion variant.
81324	PMP22 (peripheral myelin protein 22) gene analysis; duplication/deletion analysis. (Charcot-Marie-Tooth).
81325	PMP22 (peripheral myelin protein 22) gene analysis; full sequence analysis.
81326	PMP22 (peripheral myelin protein 22) gene analysis; known familial variant.

Compliance

1. Should conflict exist between this policy and applicable statute, the applicable statute shall supersede.
2. Federal and State law, as well as contract language, including definitions and specific contract provisions or exclusions, take precedence over medical policy and must be considered first in determining eligibility for coverage.
3. Medical technology is constantly evolving, and Iowa Medicaid reserves the right to review and update medical policy on an annual and as-needed basis.

Medical necessity guidelines have been developed for determining coverage for member benefits and are published to provide a better understanding of the basis upon which coverage decisions are made. They include concise clinical coverage criteria based on current literature review, consultation with practicing physicians in the service area who are medical experts in the particular field, FDA and other government agency policies, and standards adopted by national accreditation organizations. Criteria are revised and updated annually, or more frequently if new evidence becomes available that suggests needed revisions.

References

Ad hoc genetics specialist panel, March 2014.

American Medical Association. CPT Professional Manual, 2013.

ACMG guidelines - Evaluation of the Newborn with Single or Multiple Congenital Abnormalities.

Ahn et al.: Array CGH as a first line diagnostic test in place of karyotyping for postnatal referrals - results from four years' clinical application for over 8,700 patients. Molecular Cytogenetics 2013 6:16.

Battaglia A, et al., Confirmation of chromosomal microarray as a first-tier clinical diagnostic test for individuals with developmental delay, intellectual disability, autism spectrum disorders and dysmorphic features, European Journal of Paediatric Neurology (2013), http://dx.doi.org/10.1016/j.ejpn.2013.04.010.

Coulter ME, M. D. (2011, September). Chromosomal microarray testing influences medical management. *Genetics in Medicine, 13*(9), 770 - 776.

Henderson LB, et al. Genet Med 13 March 2014. Doi:10.1038/gim.2014.18.

Schaefer BG, et. Al., Genet Med 21 March 2013. Doi:10.1038/gim.2013.32.

Shen Y, et al., Clinical Genetic Testing for Patients With Autism Spectrum Disorders. *Pediatrics* 2010;125;e727. DOI: 10.1542/peds.2009-1684.

Development of utilization management criteria may also involve research into other state Medicaid programs, other payer policies, consultation with experts and review by the Medicaid Clinical Advisory Committee (CAC). These sources may not be referenced individually unless they are specifically published and are otherwise applicable to the criteria at issue.

Criteria Change History

Change Date	Changed By	Description of Change	Version
Signature			

Change Date	Changed By	Description of Change	Version
Signature			

Change Date	Changed By	Description of Change	Version
4/19/2024	CAC	Annual review.	10
Signature William (Bill) Jagiello, DO			

Change Date	Changed By	Description of Change	Version
4/21/2023	CAC	Annual review.	9
Signature William (Bill) Jagiello, DO			

Change Date	Changed By	Description of Change	Version
4/15/2022	CAC	Annual review.	8
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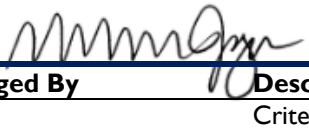
Change Date	Changed By	Description of Change	Version
4/16/2021	CAC	Annual review. Minor formatting changes.	7
Signature William (Bill) Jagiello, DO			

Change Date	Changed By	Description of Change	Version
4/20/2018	CAC	Criterion #1 added "or phenotype" and "defined". Criterion #2 deleted "and/or to rule out or rule in a diagnosis". Under Fragile X added narrative on specific codes for high risk pregnancies.	6
Signature C. David Smith, MD			

Change Date	Changed By	Description of Change	Version
6/9/2015	Policy Medical Director	Criteria - added paragraph on familial cancer syndromes. Added criterion #2.	5
Signature			

Criteria Change History (continued)

Change Date	Changed By	Description of Change	Version
4/17/2015	CAC	Added "may not apply to testing for familial cancer syndromes" in criteria. Added last paragraph in References.	4
Signature			

Change Date	Changed By	Description of Change	Version
4/18/2014	Medical Director	Total revision based on ad hoc committee input.	3
Signature			

Change Date	Changed By	Description of Change	Version
12/12/2013	Medical Director	Formatting changes and addition of sample CPT codes.	2
Signature			

Change Date	Changed By	Description of Change	Version
1/18/2013	CAC	Criteria - add information on non-coverage in 6th paragraph.	1
Signature			