Quartz

Whole Exome and Whole Genome Sequencing

Last Revision/Review Date: July 15, 2020 **P&P # C.6.35**

Policy

The Medical Management Department reviews referral requests for authorization of whole exome and whole genome sequencing.

This Medical Policy does not constitute medical advice. When deciding coverage, the enrollee's specific plan document must be referenced. The terms of an enrollee's plan document (Certificate of Coverage (COC) or Summary Plan Description (SPD)) may differ from this Medical Policy. In the event of a conflict, the enrollee's specific benefit plan document supersedes this Medical Policy. All reviewers must first identify enrollee eligibility, any federal or state regulatory requirements, and the plan benefit coverage prior to use of this Medical Policy. Other Policies and Coverage Determination Guidelines may apply. Quartz reserves the right, in its sole discretion, to modify its Policies and Guidelines as necessary.

Procedure

A. Documentation Requirements:

In order to facilitate the authorization process, referral requests must include the following:

1. Documentation that the patient has been evaluated by a board certified medical geneticist or other board-certified specialist physician with a specific expertise in the (genetic) conditions which are considered likely.
2. Order by a board certified medical geneticist or genetic qualified nurse or pediatrician, neurologist or psychiatrist in coordination with genetics.
3. Documentation that pretest counseling has been performed and posttest counseling is planned.

B. Criteria for Medical Necessity

Whole exome sequencing is medically necessary if **ALL** of the following are met:

1. Age <=18**; AND**
2. A genetic disorder is likely to be the cause of the child's symptoms/abnormalities as displayed by **ONE** of the following:
    a. Presence of multiple abnormalities affecting unrelated organ systems; **OR**
    b. **TWO** of the following:
        i. Abnormality in at least one organ system;
        ii. Family history is strongly suggestive of a genetic etiology;
        iii. Significant intellectual disability, complex neurodevelopmental disorder or severe neuropsychiatric condition;
        iv. Unexplained developmental regression; **AND**
3. No other causative circumstances exist to explain the symptoms/abnormalities, (e.g., infection, injury, environmental exposure); **AND**

4. Symptoms/abnormalities do not suggest a condition for which single or targeted gene testing is available **OR** such testing has been performed and is negative; **AND**
5. A diagnosis cannot be made by standard clinical work-up including single gene mutation testing for specific conditions and/or testing may preclude the need for invasive procedures for diagnosis (e.g., biopsy or invasive testing); **AND**
6. Testing is predicted to have an impact on health outcomes through **ONE** of the following:
    a. Determining prognosis or appropriate treatment plan; **OR**
    b. Avoidance of invasive testing for diagnostic purposes; **OR**
    c. Avoidance of future testing for screening purposes if such testing could be avoided through the results of WES.

Note: Testing of the biological mother and father of the child (i.e., family trio/comparative testing) is considered medically necessary when criteria are met for child testing and is performed concurrently, or child testing has been previously performed.

C. Indications Considered Experimental and Investigational (Not an all-inclusive list):

1. Whole exome sequencing or whole genome sequencing for tumor mutations / cancer testing.
2. Whole genome testing for any indication including newborn screening.
3. Whole mitochondrial genome sequencing for any indication.

References:

Hayes, Inc. Clinical Utility Evaluation.

- Prenatal Whole Genome Sequencing and Prenatal Whole Exome Sequencing. Publication date Jun 15, 2020. Accessed Jun 17, 2020.
- Whole Exome Sequencing in Neurological Conditions in Pediatric Populations. Publication date July 28, 2016. Annual review Jul 19 2019. Accessed May 21, 2020.
- Whole Genome Sequencing (WGS) in Neonatal and Pediatric Populations. Sept 22, 2016. Annual review Aug 12, 2019. Accessed May 21, 2020.

International Society for Prenatal Diagnosis (ISPD), the Society for Maternal Fetal Medicine (SMFM), and the Perinatal Quality Foundation (PQF). Joint Position Statement on the use of genome-wide sequencing for fetal diagnosis. Prenatal Diagnosis. 2018;38:6-9.

Kalia SS, et al. Recommendations for reporting of secondary findings in clinical exome and genome sequencing, 2016 update (ACMG SF v.2.0): a policy statement of the American College of Medical Genetics and Genomics. Genetics in Medicine. 2017;19 (2):249-255.

Monaghan KG, Leach NT, Pekarek D, Prasad P, Rose NC & on behalf of the ACMG Professional Practice and Guidelines Committee. The use of fetal exome sequencing in prenatal diagnosis: a points to consider document of the American College of Medical Genetics and Genomics (ACMG). Genetics in Medicine. 2020;22:675–680.

Waggoner D, et al. Yield of additional genetic testing after chromosomal microarray for diagnosis of neurodevelopmental disability and congenital anomalies: a clinical practice resource of the American College of Medical Genetics and Genomics (ACMG). Genetics in Medicine. 2018;20:1105-1113.

Washington State Health Care Authority Health Technology Assessment. Whole exome sequencing (WES). November 22, 2019. Available at: https://www.hca.wa.gov/about-hca/health-technology-assessment/whole-exome-sequencing Accessed May 21, 2020.

Review, Revision and Distribution

This policy and any material revisions to this policy require the approval of the Chief Medical Officer and Vice President.

External requests for access to this P&P (from network partners, sister companies, etc.) should be directed to the Chief Medical Officer.

This document will be updated periodically to reflect changing business and technology requirements or at least annually, whichever is sooner. All change requests should be directed to the document owner.