GENETIC TESTING FOR EPIDERMAL GROWTH FACTOR RECEPTOR MUTATION ANALYSIS IN NON-SMALL CELL LUNG CANCER (NSCLC)

Coverage for services, procedures, medical devices and drugs are dependent upon benefit eligibility as outlined in the member's specific benefit plan. This Medical Coverage Guideline must be read in its entirety to determine coverage eligibility, if any.

The section identified as “Description” defines or describes a service, procedure, medical device or drug and is in no way intended as a statement of medical necessity and/or coverage.

The section identified as “Criteria” defines criteria to determine whether a service, procedure, medical device or drug is considered medically necessary or experimental or investigational.

State or federal mandates, e.g., FEP program, may dictate that any drug, device or biological product approved by the U.S. Food and Drug Administration (FDA) may not be considered experimental or investigational and thus the drug, device or biological product may be assessed only on the basis of medical necessity.

Medical Coverage Guidelines are subject to change as new information becomes available.

For purposes of this Medical Coverage Guideline, the terms "experimental" and "investigational" are considered to be interchangeable.

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Description:

Mutations in the epidermal growth factor receptor (EGFR) gene can prevent effective treatment of advanced non-small cell lung cancer (NSCLC) with tyrosine kinase inhibitors (TKIs) such as erlotinib (Tarceva®) or afatinib (Gilotrif™). EGFR is a receptor tyrosine kinase (TK) frequently overexpressed and activated in NSCLC. Mutations in the EGFR gene (exons 18-24) – small deletions in exon 19 and a point mutation in exon 21 (L858R) appear to predict tumor response to tyrosine kinase inhibitors (TKIs). Genetic testing is performed to determine if an individual with advanced NSCLC should be considered for TKI therapy or if better suited for alternative therapies.

Current (2014) guidelines from the National Comprehensive Cancer Network recommend EGFR mutation testing:

1. For individuals with advanced lung cancer, non-squamous cell type
2. When biopsy specimens are small and histology is mixed
GENETIC TESTING FOR EPIDERMAL GROWTH FACTOR RECEPTOR MUTATION ANALYSIS IN NON-SMALL CELL LUNG CANCER (NSCLC) (cont.)

Description: (cont.)

Current (2014) guidelines issued jointly by the College of American Pathologists and partner Associations recommend:

1. EGFR mutation testing in individuals with lung adenocarcinoma regardless of clinical characteristics (e.g., smoking history)
2. No EGFR mutation testing when an adenocarcinoma component is lacking; and
3. EGFR mutation testing when lung cancer specimens are limited (e.g., biopsy, cytology) and an adenocarcinoma component cannot be completely excluded. Clinical criteria (e.g., lack of smoking history) may be useful to select a subset of these samples for testing.

Definitions:

Genetic Testing:
Analysis of DNA, RNA, chromosomes, proteins and certain metabolites in order to detect alterations related to an inherited disorder.

Gene:
A hereditary unit consisting of segments of DNA that occupies a specific location on chromosomes. Genes undergo mutation when their DNA sequence changes.

Gene Expression:
The translation of the information encoded in a gene into messenger RNA (mRNA) which may or may not then be translated into a protein.

Genetic Counseling:
Instruction that provides interpretation of genetic tests and information about courses of action that are available for the care of an individual with a genetic disorder or for future family planning.

Affected Individual:
An individual displaying signs or symptoms characteristic of a suspected or specific inherited disorder.

Unaffected Individual:
An individual who displays no signs or symptoms characteristic of a suspected or specific inherited disorder.

Screening:
Genetic screening is the testing of an individual with no symptoms for a specific inherited disorder to determine if the individual carries an abnormal gene. Screening can be used to predict risk or potential risk for the individual or their offspring.
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Criteria:

For genetic testing for KRAS mutation to determine if an individual with NSCLC should be considered for cetuximab (Erbitux®) and erlotinib (Tarceva®) treatment, see BCBSAZ Medical Coverage Guideline, “Genetic Testing for KRAS Mutation Analysis in Non-Small-Cell Lung Cancer”.

- Genetic testing and/or counseling of an unaffected individual, regardless of risk factors is considered screening and not eligible for coverage.

- Genetic testing and/or counseling of an affected individual to confirm a disease when confirmation of the diagnosis would not impact the care and/or management is considered not medically necessary and not eligible for coverage.

- Genetic testing and/or counseling to determine epidermal growth factor receptor (EGFR) mutation is considered medically necessary to predict treatment response to erlotinib or afatinib in individuals with advanced lung adenocarcinoma or in whom an adenocarcinoma component cannot be excluded.

- Repeat genetic testing is considered medically necessary only when indicated for monitoring of treatment response to medication.

- Genetic testing and/or counseling to determine EGFR mutation in NSCLC for all other indications not previously listed or if above criteria not met is considered experimental or investigational based upon:

  1. Insufficient scientific evidence to permit conclusions concerning the effect on health outcomes, and
  2. Insufficient evidence to support improvement of the net health outcome, and
  3. Insufficient evidence to support improvement of the net health outcome as much as, or more than, established alternatives, and
  4. Insufficient evidence to support improvement outside the investigational setting.

These indications include, but are not limited to:

- Individual with advanced NSCLC of squamous cell type

Resources:

Resources prior to 02/05/13 may be requested from the BCBSAZ Medical Policy and Technology Research Department.