Policy Name: Cytochrome P450 (CYP450) Variant Genotyping (e.g., CYP2D6, CYP2C9, CYP2C19, CYP1A2, CYP3A4)
Effective Date: 3/1/2016

Important Information – Please Read Before Using This Policy

These services may or may not be covered by all Medica plans. Please refer to the member’s plan document for specific coverage information. If there is a difference between this general information and the member’s plan document, the member’s plan document will be used to determine coverage. With respect to Medicare, Medicaid and MinnesotaCare members, this policy will apply unless these programs require different coverage. Members may contact Medica Customer Service at the phone number listed on their member identification card to discuss their benefits more specifically. Providers with questions about this Medica coverage policy may call the Medica Provider Service Center toll-free at 1-800-458-5512.

Medica coverage policies are not medical advice. Members should consult with appropriate health care providers to obtain needed medical advice, care and treatment.

Coverage Policy
Cytochrome P450 (CYP450) genotyping is investigative and therefore NOT COVERED.

Note: For VKORC1 testing for warfarin, see Medica coverage policy, Pharmacogenetic Testing of the VKORC1 Gene for Warfarin Response.

Note: For the following CYP450 variant genotyping tests, see Medica coverage policy, Genetic and Pharmacogenetic Testing:
- CYP2D6 testing for eliglustat (Cerdela™) for Gaucher disease type I and tetrabenazine (Xenazine®) for Huntington’s disease
- CYP450 variant genotyping to diagnose, predict risk of or determine carrier status for hereditary health conditions. (e.g., CYP21A2 for congenital adrenal hyperplasia)

Description
Cytochrome P450 (CYP450) variant genotyping is a genetic test intended primarily to predict an individual’s response to a drug. CYP450 is a family of over 60 enzymes, which are responsible for the metabolism of a significant proportion of currently administered drugs. However, the activity of CYP450 enzymes varies among individuals and can be influenced by a number of factors, including inherited variations in the CYP450 genes, diet, concurrent medications, ethnicity, gender, overall health, age, and other environmental factors. Based on the results of CYP450 genotyping for drug metabolism, individuals are categorized as ultra-rapid, intermediate or poor metabolizers. In theory, this should lead to early selection and optimal dosing of the most effective drugs, while minimizing treatment failures, serious adverse drug reactions, and medical costs. However, numerous challenges limit widespread use of this test in the clinical setting.
Currently, the top three therapeutic areas of interest in CYP450 genotyping are psychiatry/neurology, oncology, and cardiovascular medicine. In response, several labs have developed panels of diagnostic genotyping tests for CYP 450 genes. Some examples of specific laboratory developed tests include, but are not limited to, the following:

- GeneSight Psychotropic (Assurex Health Inc.)
- STA²R SureGene Test (SureGene LLC)
- Mental Health DNA Insight (Pathway Genomics)
- PersonaGene™ Genetic Panel (American International Biotechnology LLC)
- YouScript Panel (Genelex Corp.)

**FDA Approval**
A number of genotyping tests for some CYP450 variants are currently available. Using DNA extracted from a whole blood sample, these tests are intended to identify CYP450 variants and provide a predicted metabolic phenotype. The majority of tests are laboratory-developed tests, which do not require approval by the Food & Drug Administration (FDA), but are regulated by, and certified under, the Clinical Laboratory Improvement Act (CLIA) of 1988. However, the FDA has cleared a number of CYP 450 genotyping test kits for marketing through the 510(k) process, including, but not limited to:

- AmpliChip® CYP450 Test (Roche Molecular Systems, Inc.)
- INFINITI CYP2C19 Assay (AutoGenomics, Inc.)
- xTAG® CYP kits (Luminex Molecular Diagnostics)
- Verigene CYP2C19 Nucleic Acid Test (Nanosphere Inc.).

**Prior Authorization**
Prior authorization is not applicable. Claims for this service are subject to retrospective review and denial of coverage, as investigative services are not eligible for reimbursement.

**Coding Considerations**
Use the current applicable CPT/HCPCS code(s). The following codes are included below for informational purposes only, and are subject to change without notice. Inclusion or exclusion of a code does not constitute or imply member coverage or provider reimbursement.

**CPT Codes**

- 81230 - CYP3A4 (cytochrome P450 family 3 subfamily A member 4) (eg, drug metabolism), gene analysis, common variant(s) (eg, *2, *22)
- 81479 - Unlisted molecular pathology procedure
Medica Coverage Policy

Original Effective Date: 1/1/2013

Re-Review Date(s): 12/16/15
1/1/2018 – Administrative update; codes added

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