Coding Implications
Revision log

CONCERT SPECIALTY TESTING: NUTRITION AND METABOLISM

See Important Reminder at the end of this policy for important regulatory and legal information.

OVERVIEW

This policy addresses the use of tests for nutrition and metabolism.

For additional information see the Rationale and References section.

The tests, CPT codes, and ICD codes referenced in this policy are not comprehensive, and their inclusion does not represent a guarantee of coverage or non-coverage.

POLICY REFERENCE TABLE

Criteria Sections	Example Tests (Labs)	Support
Methylenetetrahydrofolate Reductase (MTHFR) Deficiency		
MTHFR Variant Analysis	Methylenetetrahydrofolate Reductase (MTHFR) Thermolabile Variant, DNA Analysis (LabCorp)	Rationale/ References
	Methylenetetrahydrofolate Reductase (MTHFR), DNA Mutation Analysis (Quest Diagnostics)	
Vitamins, Minerals and Amino Acids		

Criteria Sections	Example Tests (Labs)	Support
Serum 25-hydroxyvitamin D (25(OH)D) Tests	25-Hydroxyvitamin D2 and D3 by Tandem Mass Spectrometry, Serum (ARUP Laboratories)	Rationale/ References
Serum 1,25-dihydroxyvitamin D (1,25(OH)2D) Tests	Calcitriol (1,25 di-OH Vitamin D) (Labcorp)	Rationale/ References
Serum Vitamin B12 and/or Folate Tests	Vitamin B12 (Cobalamin) and Folate Panel, Serum (Quest Diagnostics)	Rationale/ References
	Vitamin B12 Assay, Serum (Mayo Clinic Laboratories)	
	Folate (Folic Acid) (Labcorp)	
Serum Iron (Ferritin, Iron, Iron Binding Capacity, and/or Transferrin) Tests	Iron and Total Iron-binding Capacity (TIBC) (LabCorp)	Rationale/ References
	Iron, TIBC and Ferritin Panel (Quest Diagnostics)	
Serum/Plasma Homocysteine Tests	Homocysteine (Quest Diagnostics)	Rationale/ References
Other Covered Metabolic Disorders		
Other Covered Metabolic Disorders	See list below	Additional References

CRITERIA

It is the policy of health plans affiliated with Centene Corporation® that the specific tests noted below are **medically necessary** when meeting the related criteria:

METHYLENETETRAHYDROFOLATE REDUCTASE (MTHFR) DEFICIENCY

MTHFR Variant Analysis

I. Current evidence does not support the use of MTHFR targeted variant analysis (e.g., 677T, 1298C) for all indications, including but not limited to:

   A. Evaluation for thrombophilia or recurrent pregnancy loss

   B. Evaluation of at-risk relatives

   C. Drug metabolism, such as in pharmacogenetic testing.

VITAMINS, MINERALS AND AMINO ACIDS

Serum 25-hydroxyvitamin D (25(OH)D) Tests

I. 25(OH)D tests are considered **medically necessary** a maximum of three times per year when:

   A. The member/enrollee is being monitored during treatment for vitamin D deficiency or insufficiency (serum 25(OH)D levels less than 30 ng/ml), **OR**

   B. The member/enrollee is being monitored during treatment for hypervitaminosis D, **OR**

   C. The member/enrollee has at least one of the following risk factors for vitamin D deficiency:

      1. Chronic kidney disease, **OR**

      2. Liver disease/liver failure, **OR**

3. Malabsorption syndrome (e.g., Cystic Fibrosis, inflammatory bowel disease, bariatric surgery, radiation enteritis), **OR**
4. Use of anti-epileptic drugs, glucocorticoids, AIDS/anti-HIV medications, antifungals, or cholestyramine, **OR**
5. Granuloma-forming disorder (e.g., sarcoidosis, tuberculosis, histoplasmosis, Coccidiomycosis, Berylliosis, some lymphomas), **OR**

D. The member/enrollee has at least one of the following signs or symptoms of vitamin D deficiency or excess:

1. Abnormal calcium levels, **OR**
2. Low serum phosphate levels, **OR**
3. Elevated parathyroid hormone levels/hyperparathyroidism, **OR**
4. Decreased bone mineral density (osteopenia, osteoporosis), **OR**
5. Non-traumatic fracture(s), **OR**
6. Bone pain, **OR**
7. Muscle aches and/or proximal muscle weakness.

II. Current evidence does not support the use of 25(OH)D tests for all other indications.

Serum 1,25-dihydroxyvitamin D (1,25(OH)2D) Tests

I. $1,25(OH)_2D$ tests are considered **medically necessary** a maximum of twice per year when:

A. The member/enrollee has one or more of the following:

1. Chronic kidney disease, **OR**
2. Hypercalcemia, **OR**
3. Hereditary phosphate-losing disorders, **OR**
4. Oncogenic osteomalacia, **OR**

5. Vitamin D-resistant or pseudovitamin D-deficiency rickets, **OR**

6. A granuloma-forming disorder (e.g., sarcoidosis, tuberculosis, histoplasmosis, Coccidiomycosis, Berylliosis, some lymphomas).

II. Current evidence does not support the use of $1,25(OH)_2D$ tests for all other indications, including for evaluation of vitamin D status.

Serum Vitamin B12 and/or Folate Tests

I. Vitamin B12 and/or folate tests are considered **medically necessary** a maximum of three times per year when:

A. The member/enrollee is being monitored during treatment for vitamin B12/folate deficiency, **OR**

B. The member/enrollee has one or more of the following risk factors for vitamin B12 or folate deficiency:

1. Undernutrition, **OR**

2. Malabsorption (e.g., due to inflammatory bowel disease, celiac disease, gastrectomy, gastric bypass, intestinal resection, pancreatic insufficiency, autoimmune/autoinflammatory diseases, tapeworm infection, pernicious anemia, atrophic gastritis, history of pelvic or abdominal radiation/radiation enteritis), **OR**

3. Excessive alcohol consumption/alcohol use disorder, **OR**

4. Recreational nitrous oxide use, **OR**

5. Age of 75 years or older, **OR**

6. Diet low in vitamin B12 (e.g., due to vegan or vegetarian diet, meat/egg/dairy allergies, food insecurity, restricted diet, eating disorder), **OR**

7. Use of histamine H2 blockers, proton pump inhibitor drugs , metformin, colchicine, phenobarbital, pregabalin, primidone, or topiramate, , **OR**

8. Genetic disorder affecting vitamin B12 or folate absorption/metabolism (e.g., transcobalamin II deficiency, certain *SLC46A1* genetic variants, intrinsic factor deficiency), **OR**

C. The member/enrollee has one or more of the following signs or symptoms of vitamin B12 or folate deficiency:

1. Abnormal blood counts (anemia, leukopenia, pancytopenia, thrombocytopenia, thrombocytosis, refractory iron deficiency anemia in pregnancy or during breastfeeding), **OR**

2. Myalgic encephalomyelitis (chronic fatigue syndrome), **OR**

3. Skin findings of pallor, hyperpigmentation, jaundice, or vitiligo, **OR**

4. Neurological abnormalities (areflexia, gait abnormalities, peripheral neuropathy, numbness/paresthesia, loss of proprioception/vibratory sense, olfactory impairment), **OR**

5. Dementia (Alzheimer's or non-Alzheimer's) or dementia-like symptoms (short-term memory loss, delirium, difficulty concentrating),, **OR**

6. Glossitis, **OR**

7. Optic nerve dysfunction (blurred vision, optic atrophy, visual field loss/scotoma).

II. Current evidence does not support the use of vitamin B12 and/or folate tests for all other indications.

Serum Iron (Ferritin, Iron, Iron Binding Capacity, and/or Transferrin Saturation) Tests

I. Serum iron (ferritin, iron, iron binding capacity, and/or transferrin saturation) tests are considered **medically necessary** a maximum of four times per year when:

A. The member/enrollee has one of more of the following clinical signs or symptoms of iron deficiency:

1. Abnormal blood counts suggestive of iron deficiency (e.g., decreased MCV), **OR**
2. Acute or chronic blood loss (e.g., gastrointestinal or heavy menstrual bleeding, hematuria, frequent blood donation), **OR**
3. Integumentary abnormalities (pallor/sallow skin coloring, brittle nails, and/or hair loss), **OR**
4. Unexplained fatigue and/or generalized weakness, **OR**
5. Pica (abnormal craving to eat non-food materials such as ice or soil), **OR**
6. Restless leg syndrome, **OR**
7. Exertional dyspnea/exercise intolerance (shortness of breath/chest pain with activity), **OR**
8. Tachycardia (rapid heart rate), **OR**

B. The member/enrollee has one of more of the following clinical signs or symptoms of iron overload:

1. Abnormal liver function studies (e.g., elevated liver enzymes), **OR**
2. Liver disease (hepatitis, fibrosis, or cirrhosis), **OR**
3. Hepatocellular carcinoma, **OR**
4. Heart disease (cardiomyopathy, cardiac arrhythmia, or heart failure), **OR**
5. Hypogonadotropic hypogonadism, **OR**
6. Hypopituitarism, **OR**
7. Hypermelanotic pigmentation (bronze skin), **OR**
8. Hyperglycemia, **OR**
9. Diabetes mellitus, **OR**
10. Arthropathy (joint pain, swelling, or chondrocalcinosis), **OR**

C. The member/enrollee has one or more of the following risk factors for iron deficiency or iron overload:

1. Hereditary Hemochromatosis, **OR**
2. Hereditary Hemochromatosis in one or more first-degree relatives, **OR**
3. Hereditary iron deficiency conditions, such as IRIDA (iron-refractory iron deficiency anemia), **OR**
4. Chronic kidney disease, **OR**
5. Chronic liver disease, **OR**
6. Porphyria treatment via hemin therapy, **OR**
7. Reduced iron absorption (e.g., celiac disease, autoimmune gastritis or *H. pylori* infection, bariatric surgery), **OR**
8. Red blood cell transfusions for chronic anemias (e.g., sickle cell disease, aplastic anemia, myelodysplastic syndrome), **OR**
9. Suspected exposure to excess iron (e.g., occupational, supplement overuse), **OR**

D. The member/enrollee is between 0 and 3 years of age, **AND**

1. Has risk factors for iron deficiency (e.g., lead exposure, low socioeconomic status, special healthcare needs, prematurity or low birth weight, inadequate iron intake according to dietary history), **OR**

II. Serum iron tests are considered **medically necessary** once for universal screening for iron deficiency when:

A. The member/enrollee is between 8 and 18 years of age, **AND**

1. Has been menstruating for at least one year.

III. Current evidence does not support the use of iron binding capacity testing when performed simultaneously with transferrin testing.

IV. Current evidence does not support the use of serum iron (ferritin, iron, iron binding capacity, and/or transferrin saturation) testing for all other indications.

Serum/Plasma Homocysteine Tests

I. Serum/plasma homocysteine testing is considered **medically necessary** when:

A. The member/enrollee is being monitored during treatment for homocystinuria, **OR**

B. The member/enrollee meets **BOTH** of the following:

1. One of the following:

a) High myopia, **OR**

b) Ectopia lentis, **OR**

c) Thromboembolism, **OR**

d) Skeletal abnormalities (e.g., Marfanoid features, genu valgum/knock knees, osteoporosis), **OR**

e) Intellectual disability or developmental delay, **OR**

f) Extrapyramidal signs (e.g., increased motor tone, dystonia), **OR**

g) A psychiatric disorder, **OR**

h) Seizures, **OR**

i) A biological sibling with homocystinuria, **AND**

2. It has been at least one year since the member's/enrollee's last test.

II. Current evidence does not support the use of serum/plasma homocysteine tests for all other indications, including for confirmation of borderline vitamin B12 or folate deficiency.

OTHER COVERED METABOLIC DISORDERS

Other Covered Metabolic Disorders

The following is a list of conditions that have a known genetic association. Due to their relative rareness, it may be appropriate to cover these genetic tests to establish or confirm a diagnosis.

I. Genetic testing to establish or confirm one of the following metabolic conditions to guide management is considered **medically necessary** when the member/enrollee demonstrates clinical features consistent with the disorder (the list is not meant to be comprehensive, see II below):

A. Congenital adrenal hyperplasia, including:

1. 21-Hydroxylase deficiency

B. Congenital disorders of glycosylation

C. Congenital hyperinsulinism

D. Disorders of amino acid and peptide metabolism, including:

1. Glutaric acidemia type I (GA-1)
2. Homocystinuria caused by cystathionine beta-synthase (CBS) deficiency
3. Methylmalonic acidemia
4. Propionic acidemia
5. Maple Syrup Urine Disease (MSUD)

E. Disorders of biotin metabolism, including:

1. Biotinidase deficiency

F. Disorders of carnitine transport and the carnitine cycle, including:

1. Carnitine palmitoyltransferase II deficiency
2. Primary carnitine deficiency

G. Disorders of copper metabolism, including:

1. ATP7A-Related copper transport disorders (e.g., Menkes disease, occipital horn syndrome (OHS), ATP7A-related distal motor neuropathies)
2. Wilson disease

H. Disorders of fatty acid oxidation, including:

1. Medium-chain acyl-coenzyme A dehydrogenase deficiency (MCAD deficiency)

I. Disorders of galactose metabolism, including:

1. Galactosemia

J. Disorders of glucose transport, including:

1. Glucose transporter type I deficiency syndrome (Glut1 DS)

K. Disorders of phenylalanine or tyrosine metabolism, including:

1. Alkaptonuria
2. Phenylalanine hydroxylase deficiency

L. Disorders of porphyrin and heme metabolism, including:

1. Acute intermittent porphyria

M. Fibrous Dysplasia/McCune-Albright Syndrome

N. Glycogen storage disorders, including:

1. Glycogen Storage Disease Type I (GSDI)
2. Pompe disease (GSDII)

O. Hypophosphatasia

P. Kallmann syndrome (GnRH deficiency)

Q. Lysosomal storage disorders, including:

1. Gaucher disease
2. Krabbe disease

3. MPS-Type I (Hurler syndrome)
4. MPS-Type II (Hunter syndrome)
5. Mucolipidosis IV

R. Urea cycle disorders, including:

1. Ornithine Transcarbamylase (OTC) deficiency

S. Malignant hyperthermia

T. SHOX deficiency disorders.

II. Genetic testing to establish or confirm the diagnosis of all other metabolic disorders not specifically discussed within this or another medical policy will be evaluated by the criteria outlined in *General Approach to Laboratory Testing* (see policy for coverage criteria).

NOTE: Clinical features for a specific disorder may be outlined in resources such as GeneReviews, OMIM, National Library of Medicine, Genetics Home Reference, or other scholarly sources.

RATIONALE AND REFERENCES

MTHFR Variant Analysis

American College of Medical Genetics and Genomics (ACMG)

ACMG published a practice guideline, which they later reclassified as a clinical practice resource, for *MTHFR* polymorphism testing (2013, reaffirmed in 2020). The practice resource (called lack of evidence for MTHFR polymorphism testing) includes the following recommendations:

- *MTHFR* polymorphism genotyping should not be ordered as part of the clinical evaluation for thrombophilia or recurrent pregnancy loss
- *MTHFR* polymorphism genotyping should not be ordered for at-risk family members (p. 154).

Bashford MT, Hickey SE, Curry CJ, Toriello HV; American College of Medical Genetics and Genomics (ACMG) Professional Practice and Guidelines Committee. Addendum: ACMG Practice Guideline: lack of evidence for MTHFR polymorphism testing. Genet Med. 2020;22(12):2125. doi:10.1038/s41436-020-0843-0

American College of Obstetricians and Gynecologists (ACOG)

ACOG published practice bulletin No. 197 in 2018 (reaffirmed in 2022) called Inherited Thrombophilias in Pregnancy. ACOG does not include *MTHFR* mutation analysis in their list of recommended screening tests for inherited thrombophilias, and also points out a lack of association between *MTHFR* C677T

polymorphisms and adverse pregnancy outcomes (p. e24 and e28). Additionally, ACOG notes that homozygosity for the *MTHFR* mutations themselves does not increase the risk for VTE in women (either pregnant or not pregnant) (p. e21).

American College of Obstetricians and Gynecologists' Committee on Practice Bulletins–Obstetrics. ACOG Practice Bulletin No. 197: Inherited Thrombophilias in Pregnancy [published correction appears in Obstet Gynecol. 2018 Oct;132(4):1069. (Reaffirmed 2022). Obstet Gynecol. 2018;132(1):e18-e34. doi:10.1097/AOG.0000000000002703 doi:10.1097/AOG.0000000000002924.]

Food and Drug Administration (FDA)

The FDA does not list *MTHFR* in Section 1 of the Table of Pharmacogenetic Associations ("Pharmacogenetic Associations for which the Data Support Therapeutic Management Recommendations").

Table of Pharmacogenetic Associations. FDA website. Updated October 26, 2022. https://www.fda.gov/medical-devices/precision-medicine/table-pharmacogenetic-associations.

Serum 25-hydroxyvitamin D (25(OH)D) Tests

Endocrine Society

In "Evaluation, Treatment, and Prevention of Vitamin D Deficiency: an Endocrine Society Clinical Practice Guideline" (2011), the Endocrine Society does not recommend population screening for vitamin D deficiency. They state that it is reasonable to screen for vitamin D deficiency in individuals at increased risk of vitamin D deficiency, who would promptly benefit from intervention to optimize vitamin D levels. They list the following diseases and/or characteristics as risk factors for vitamin D deficiency:

- Bone diseases (Rickets, osteomalacia, osteoporosis
- Chronic kidney disease
- Hepatic failure
- Malabsorption syndromes (Cystic fibrosis, inflammatory bowel disease, bariatric surgery, radiation enteritis)
- Hyperparathyroidism
- Medications (anti-seizure medications, glucocorticoids, AIDS medications, Antifungals, e.g. ketoconazole, cholestyramine)
- African-American and Hispanic ethnicity
- Pregnant and lactating women
- Older adults with history of falls or nontraumatic fractures
- Obese children and adults (BMI > 30 kg/m2)
- Granuloma-forming disorders (sarcoidosis, tuberculosis, histoplasmosis, Coccidiomycosis, Berylliosis, some lymphomas)

The guideline calls out several treatment doses/durations for vitamin D deficiency depending on the patient characteristics, stating that treatment should be continued to achieve a blood level of 25(OH)D above 30 ng/ml. This implies that monitoring levels of 25(OH)D is indicated (p. 1915).

Holick MF, Binkley NC, Bischoff-Ferrari HA, et al; Endocrine Society. Evaluation, treatment, and prevention of vitamin D deficiency: an Endocrine Society clinical practice guideline. J Clin Endocrinol Metab. 2011;96(7):1911-1930. doi:10.1210/jc.2011-0385

"Vitamin D for the Prevention of Disease: An Endocrine Society Clinical Practice Guideline" (2024) reiterates against screening of vitamin D levels in the general population. This updated guideline adds a new recommendation against screening in individuals with obesity and dark complexions, in absence of other risk factors or indications for testing. They also suggest against measuring 25(OH)D levels to guide decision-making and routine follow-up testing to guide vitamin D dosing, without other established indications (including during pregnancy). The panel concluded that empiric vitamin D supplementation is inexpensive, acceptable, and has no negative effect on health equity. They suggest empiric vitamin D for individuals 1-18 and over 75 years of age, those who are pregnant, and those with high-risk prediabetes (p. 2, 4-6).

Demay MB, Pittas AG, Bikle DD, et al. Vitamin D for the Prevention of Disease: An Endocrine Society Clinical Practice Guideline. J Clin Endocrinol Metab. 2024;109(8):1907-1947. doi:10.1210/clinem/dgae290. Erratum in: J Clin Endocrinol Metab. 2025 Feb 18;110(3):e916. doi: 10.1210/clinem/dgae854. Erratum in: J Clin Endocrinol Metab. 2025 Jul 15;110(8):e2810. doi: 10.1210/clinem/dgaf310.

US Preventive Services Task Force (USPSTF)

The USPSTF Recommendation Statement "Screening for Vitamin D Deficiency in Adults" (2021) concluded that "the evidence is insufficient to assess the balance of benefits and harms of screening for vitamin D deficiency in asymptomatic adults".

US Preventive Services Task Force. Screening for Vitamin D Deficiency in Adults: US Preventive Services Task Force Recommendation Statement. JAMA. 2021;325(14):1436–1442. doi:10.1001/jama.2021.3069

American Society of Clinical Pathology (ASCP)

The ASCP (2017) recommends against screening for vitamin D deficiency in the general population and deems laboratory testing appropriate for individuals at high risk (e.g., those with osteoporosis, chronic kidney disease, malabsorption, some infections, obesity) when results will be used to initiate more aggressive clinical treatment.

Twenty Things Physicians and Patients Should Question. American Society for Clinical Pathology. Published 2017. https://www.ascp.org/content/docs/default-source/get-involved-pdfs/20-things-to-question.pdf?sfvrsn=4

American Academy of Family Physicians (AAFP)

The AAFP suggests that 25-hydroxyvitamin D levels should be obtained for individuals with suspected vitamin D deficiency. They list manifestations of vitamin D deficiency, which include bone pain, increased falls, muscle aches, proximal muscle weakness, and symmetric lower back pain in women. Additionally, signs of vitamin D deficiency include elevated parathyroid hormone levels, and low serum/urine calcium and/or serum phosphorus (p. 843).

Bordelon P, Ghetu MV, Langan RC. Recognition and management of vitamin D deficiency. Am Fam Physician. 2009 Oct 15;80(8):841-6. Erratum in: Am Fam Physician. 2009 Dec 15;80(12):1357. PMID: 19835345.

American College of Obstetricians and Gynecologists (ACOG)

ACOG committee opinion No. 495, "Vitamin D: Screening and Supplementation During Pregnancy" (2011), states that there is insufficient evidence to recommend universal vitamin D screening for pregnant women. Serum 25-hydroxyvitamin D testing can be considered for pregnant women thought to be at increased risk of vitamin D deficiency.

American College of Obstetricians and Gynecologists. ACOG Committee Opinion No. 495: Vitamin D: screening and supplementation during pregnancy. Obstet Gynecol. 2011;118(1):197-198. doi: 10.1097/AOG.0b013e318227f06b

Merck Manual

Resorption of bone and increased intestinal absorption of calcium occur in the setting of vitamin D toxicity, leading to hypercalcemia. The main symptoms of vitamin D toxicity are due to hypercalcemia (calcium levels of 12 to 16 mg/dL). Diagnosis of vitamin D toxicity is typically based on elevated levels of 25-hydroxyvitamin D in the blood (often greater than 150 ng/mL).

Vitamin D Toxicity. In: Merck Manual. Merck & Co, Inc.. Updated November 2022. Accessed May 20, 2024.

Centers for Medicare & Medicaid Services (CMS)

CMS outlines a frequency limit of 3 times per year for 25-hydroxyvitamin D, based on a review of utilization data.

Centers for Medicare & Medicaid Services. Assays for vitamins and metabolic function (LCD L34914). Revision effective date: July 1, 2020. https://www.cms.gov/medicare-coverage-database/view/lcd.aspx?lcdid=34914&ver=68&bc=0

Serum 1,25-dihydroxyvitamin D (1,25(OH)2D) Tests

Endocrine Society

In *Evaluation, Treatment, and Prevention of Vitamin D Deficiency: an Endocrine Society Clinical Practice Guideline* (2011), the Endocrine Society states that measuring serum 1,25(OH)2D is not useful for monitoring the vitamin D status of patients, and only suggests measuring 1,25(OH)2D in patients with disorders in the metabolism of 25(OH)D and phosphate, including chronic kidney disease, hereditary phosphate-losing disorders, oncogenic osteomalacia, pseudovitamin D-deficiency rickets, vitamin D-resistant rickets, and chronic granuloma-forming disorders (p. 1916).

Holick MF, Binkley NC, Bischoff-Ferrari HA, et al; Endocrine Society. Evaluation, treatment, and prevention of vitamin D deficiency: an Endocrine Society clinical practice guideline. J Clin Endocrinol Metab. 2011;96(7):1911-1930. doi:10.1210/jc.2011-0385

Centers for Medicare & Medicaid Services (CMS)

CMS outlines a frequency limit of 2 times per year for 1,25-hydroxyvitamin D, based on a review of utilization data.

Centers for Medicare & Medicaid Services. Assays for vitamins and metabolic function (LCD L34914). Revision effective date: July 1, 2020. https://www.cms.gov/medicare-coverage-database/view/lcd.aspx?lcdid=34914&ver=68&bc=0

Serum Vitamin B12 and/or Folate Tests

American Family Physician (AFP)

The AFP guideline, "Vitamin B12 Deficiency: Recognition and Management" (2017), does not recommend screening for vitamin B12 deficiency in average risk individuals, and states that screening may be warranted in individuals with certain risk factors, such as the following:

- Bariatric surgery (p. 388)
- Gastric or small intestine resections (p. 386)
- Inflammatory bowel disease (p. 387)
- Use of metformin for more than four months (p. 387)
- Use of proton pump inhibitors or histamine H2 blockers for more than 12 months (p. 387)

- Vegans or strict vegetarians (p. 387)
- Adults older than 75 years (p. 384)

Testing should also be initiated for individuals with manifestations of vitamin B12 deficiency, which can include the following:

- Cutaneous (pigmentation abnormalities, jaundice)
- Neuropsychiatric (absent reflexes, dementia-like symptoms, changes in gait, peripheral neuropathy)
- Hematologic signs and symptoms (macrocytic/megaloblastic anemia, leukopenia, pancytopenia, thrombocytopenia, thrombocytosis) (p. 386, tables 1 and 2).

Langan RC, Goodbred AJ. Vitamin B12 Deficiency: Recognition and Management. Am Fam Physician. 2017 Sep 15;96(6):384-389. PMID: 28925645

National Institute for Health and Care Excellence (NICE)

The NICE guideline "Vitamin B12 deficiency in over 16s: diagnosis and management" (2024) superseded the recommendations for the diagnosis of management of vitamin B12 deficiency from the "Guidelines for diagnosing and managing vitamin B12 deficiency the diagnosis and treatment of cobalamin and folate disorders" (2014) previously set out by the British Society for Haematology.
Section 1.2, Recognising vitamin B12 deficiency, recommends testing vitamin B12 levels in individuals with a combination of at least one common symptom or sign and at least one common risk factor associated with vitamin B12 deficiency (p. 8). Based on the committee's expert opinion and experience, they note that testing "could be an option" for those with a presenting sign or symptom and no obvious risk factors, but emphasize that signs and symptoms like unexplained fatigue can vary from person to person and are associated with many other conditions. The authors reiterate that many of the presenting signs and symptoms are not specific to vitamin B12 deficiency, underscoring the importance of clinical assessment of risk factors (p. 34-35).
They list the following common signs and symptoms of vitamin B12 deficiency:

- Abnormal blood count suggesting anemia or macrocytosis
- Cognitive difficulties (e.g., difficulty concentrating, short-term memory loss)
- Eyesight problems related to optic nerve dysfunction, such as blurred vision, optic atrophy, or visual field deficits (i.e., scotoma)
- Glossitis
- Neurological or mobility problems related to peripheral neuropathy, or to central nervous system disease including myelopathy, such as balance issues and falls caused by impaired proprioception, sensory ataxia, impaired gait, pins and needles/numbness (paraesthesia)
- Symptoms or signs of anemia during pregnancy or breastfeeding that is refractory to iron treatment
- Unexplained fatigue (Box 1, p. 9)

They list the following common risk factors for vitamin B12 deficiency:

- Diet low in vitamin B12, and in absence of supplemental vitamin B12 use
- Family history of vitamin B12 deficiency or an autoimmune condition
- Atrophic gastritis, or celiac disease or another autoimmune condition (such as thyroid disease, Sjögren's syndrome or type 1 diabetes)
- Certain medications, including colchicine, H2-receptor antagonists, metformin, phenobarbital, pregabalin, primidone, proton pump inhibitors, and topiramate
- History of radiation therapy to the abdominal or pelvic regions
- History gastrointestinal surgery, such as a bariatric operation, gastrectomy or terminal ileal resection
- Recreational nitrous oxide use (Box 2, p. 9-10).

Vitamin B12 deficiency in over 16s: diagnosis and management. London: National Institute for Health and Care Excellence (NICE); March 6, 2024.
https://www.nice.org.uk/guidance/ng239/chapter/Recommendations#recognising-vitamin-b12-deficiency

British Society for Haematology

In "Guidelines for the diagnosis and treatment of cobalamin and folate disorders" (2014), the committee noted that assessment of cobalamin and folate status is often performed concurrently; given the similar biochemical pathways of cobalamin and folate, patients often show similar clinical features for both deficiencies. Table 1 further highlights the overlap in the causes and clinical manifestations between vitamin B12 and folate deficiencies (p. 497).

Devalia V, Hamilton MS, Molloy AM; British Committee for Standards in Haematology. Guidelines for the diagnosis and treatment of cobalamin and folate disorders. Br J Haematol. 2014;166(4):496-513. doi: 10.1111/bjh.12959

Papadakis, et al

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Testing should be performed to differentiate vitamin B12 deficiency from folate deficiency, as both commonly cause megaloblastic anemia. B12 deficiency treatment is continued indefinitely and serum B12 levels should be monitored to ensure sufficient replacement.

Papadakis MA, McPhee SJ, Rabow MW, McQuaid KR, Gandhi M. CURRENT Medical Diagnosis and Treatment 2025. McGraw Hill LLC; 2025:1650.

Canadian Agency for Drugs and Technologies in Health

In "Folate Testing: A Review of the Diagnostic Accuracy, Clinical Utility, Cost-Effectiveness and Guidelines" (2015), the authors summarized the available evidence-based guidelines for folate testing, and concluded that while these provide guidance on indications for testing, there is a lack of demonstrated

clinical utility for folate testing. They list criteria indicating folate testing that appear in multiple guidelines, including: dementia, chronic fatigue syndrome/myalgic encephalomyelitis, patients with abnormal blood counts and those with suspected gastrointestinal disorders associated with malabsorption or malnutrition (p.10-11).

Canadian Agency for Drugs and Technologies in Health. Folate testing: a review of the diagnostic accuracy, clinical utility, cost-effectiveness and guidelines [Internet]. Ottawa, ON: Canadian Agency for Drugs and Technologies in Health; July 23, 2015. Summary of evidence. https://www.ncbi.nlm.nih.gov/books/NBK310980/

Centers for Medicare & Medicaid Services (CMS)

CMS outlined a frequency limit of 3 times per year for vitamin B12 and folate, based on a review of utilization data.

Centers for Medicare & Medicaid Services. Assays for vitamins and metabolic function (LCD L34914). Revision effective date: July 1, 2020. https://www.cms.gov/medicare-coverage-database/view/lcd.aspx?lcdid=34914&ver=68&bc=0

Serum Iron (Ferritin, Iron, Iron Binding Capacity, and/or Transferrin Saturation) Tests

American Academy of Pediatrics (AAP)

In “Diagnosis and Prevention of Iron Deficiency and Iron-Deficiency Anemia in Infants and Young Children (0–3 Years of Age)” (2010), the AAP emphasizes the importance of preventing iron deficiency and iron deficiency anemia given their association with adverse effects on neurodevelopment. While universal screening for anemia via hemoglobin is recommended for all children at approximately 1 year of age, the AAP notes that hemoglobin determination does not identify children with iron deficiency, nor specifically identify those with iron deficiency anemia, further stating that most toddlers with iron deficiency do not have anemia. Therefore, they recommend screening tests for iron deficiency (serum ferritin and C-reactive protein or reticulocyte hemoglobin) when children have a hemoglobin concentration of 11 mg/dL or risk factors such as prematurity or low socioeconomic status. (p. 1046-1048)

Baker RD, Greer FR; Committee on Nutrition American Academy of Pediatrics. Diagnosis and prevention of iron deficiency and iron-deficiency anemia in infants and young children (0-3 years of age). Pediatrics. 2010;126(5):1040-1050. doi:10.1542/peds.2010-2576

British Society of Gastroenterology (BSG)

In "Guidelines for the management of iron deficiency anemia in adults" (2021), the BSG recommends that patients with iron deficiency anemia be monitored via a hemoglobin level in the first month after initiating oral iron replacement therapy. After hemoglobin and iron stores have been normalized, they recommend periodic monitoring via blood count (about once every 3 months for 1 year, then once every 6 months for 2-3 years) for recurrent iron deficiency anemia. There is no recommendation for or against obtaining measurements of serum iron (including serum ferritin) for monitoring after treatment for iron deficiency anemia. (p. 504)

Snook J, Bhala N, Beales ILP, et al. British Society of Gastroenterology guidelines for the management of iron deficiency anaemia in adults. Gut. 2021;70(11):2030-2051. doi:10.1136/gutjnl-2021-325210

UpToDate

In "Causes and diagnosis of iron deficiency and iron deficiency anemia in adults," the authors make a distinction between testing individuals with symptoms versus screening asymptomatic individuals. Experts agree on the need to test individuals with unexplained anemia or signs/symptoms of iron deficiency via either ferritin or transferrin saturation (TSAT), or an iron studies panel containing serum iron, transferrin ***or*** total iron binding capacity, TSAT, and ferritin.
Expert recommendations for screening vary. They generally agree that routine screening for iron deficiency in adults without anemia is not necessary, but that screening is reasonable for those at increased risk for iron deficiency. Screening can be done with CBC alone (for individuals with lower risk of iron deficiency and those for whom returning for a second test would not be overly burdensome) or with simultaneous CBC plus iron studies (in those with higher risk of iron deficiency and for whom returning for a second test would be burdensome).
The following signs/symptoms suggest iron deficiency (primarily due to anemia):

- Fatigue
- Hair loss
- Pica (craving for non-food items, e.g., pagophagia/ice craving)
- Restless leg syndrome
- Exercise intolerance
- Exertional dyspnea
- Weakness

The following are listed as causes and risk factors for iron deficiency:

- Blood loss (heavy menstrual bleeding, hematuria, frequent blood donation, occult bleeding such as gastrointestinal)
- Dialysis/Chronic Kidney Disease
- Reduced iron absorption (celiac disease, autoimmune gastritis or *H. pylori* infection, bariatric surgery)

- High-intensity athletics
- Inherited disorders/iron refractory iron deficiency anemia (IRIDA)

Auerbach M, DeLoughery T. Causes and diagnosis of iron deficiency and iron deficiency anemia in adults. In: UpToDate, Connor RF (Ed), Wolters Kluwer. Updated February 23, 2024. https://www.uptodate.com/contents/causes-and-diagnosis-of-iron-deficiency-and-iron-deficiency-anemia-in-adults

"Iron requirements and iron deficiency in adolescents" suggests laboratory screening be performed at least once for all adolescent females by age 14, ideally at least one year after onset of menstruation. Iron deficiency is especially common in this population (up to 15%) and frequently goes undetected based on risk questionnaires, alone. They recommend at least a CBC, preferably with simultaneous serum ferritin testing.

Powers J. Iron requirements and iron deficiency in adolescents. UpToDate. Updated January 18, 2024. https://www.uptodate.com/contents/iron-requirements-and-iron-deficiency-in-adolescents

In "Approach to the patient with suspected iron overload," the following causes of iron overload are outlined:

- Transfusional iron overload due to RBC infusions for chronic anemia (thalassemia, sickle cell disease, myelodysplastic syndrome and other hematologic malignancies, hematopoietic stem cell transplant)
- Excessive iron supplementation (uncommon)
- Treatment for porphyria (uncommon)
- Hereditary hemochromatosis
- Liver disease

Kwiatkowski, J. Approach to the patient with suspected iron overload. UpToDate. Updated March 8, 2024. https://www.uptodate.com/contents/approach-to-the-patient-with-suspected-iron-overload

American College of Gastroenterology (ACG)

In "Clinical Guidelines: Hereditary Hemochromatosis" (2019), the ACG recommends serum transferrin iron saturation and serum ferritin testing for initial screening of individuals with suspected Hereditary Hemochromatosis (HH) based on symptoms, elevated liver enzymes, or family history (figure 4, p. 1212). The following clinical manifestations of HH/iron overload should prompt screening (table 4, p. 1207):

- Liver: elevated liver enzymes, enlarged liver, fibrosis, cirrhosis, and hepatocellular carcinoma
- Endocrine: elevated blood sugar, diabetes mellitus, hypogonadism, testicular atrophy, amenorrhea, loss of libido, and hypopituitarism
- Skin: hypermelanotic pigmentation (bronze skin)
- Joints: arthralgia, arthritis, and chondrocalcinosis
- Heart: cardiomyopathy, arrhythmia, heart failure

Kowdley KV, Brown KE, Ahn J, Sundaram V. ACG Clinical Guideline: Hereditary Hemochromatosis. Am J Gastroenterol. 2019;114(8):1202-1218. doi:10.14309/ajg.0000000000000315. Erratum in: Am J Gastroenterol. 2019 Dec;114(12):1927. doi: 10.14309/ajg.0000000000000469.

American Gastroenterological Association (AGA)

The AGA *"*Clinical Practice Update on Diagnosis and Management of Acute Hepatic Porphyrias: Expert Review" (2023) recommends that individuals with acute hepatic porphyria who are receiving prophylactic hemin therapy monthly or more frequently be monitored with ferritin and iron levels every 3 to 6 months due to the increased risk of iron overload. (p. 488)

Wang B, Bonkovsky HL, Lim JK, Balwani M. AGA Clinical Practice Update on Diagnosis and Management of Acute Hepatic Porphyrias: Expert Review. Gastroenterology. 2023;164(3):484-491. doi:10.1053/j.gastro.2022.11.034

Serum/Plasma Homocysteine Tests

Morris, et al.

The "Guidelines for the diagnosis and management of cystathionine beta-synthase deficiency*"* state that the severity of symptoms varies greatly among individuals with homocystinuria, from asymptomatic to multisystem involvement. These symptoms can include ectopia lentis, severe myopia, marfanoid habitus, osteoporosis, pectus excavatum or carinatum, genu valgum, scoliosis, developmental delay, intellectual disability, seizures, psychiatric and/or behavioral problems, extrapyramidal signs, and thromboembolism. It is recommended that all individuals who are using dietary means to control homocysteine levels in the setting of homocystinuria receive periodic testing to monitor the therapy. The frequency of testing varies and is dependent upon severity of disorder, treatment, age, and clinical condition of the patient. It is also recommended that women have more frequent testing during pregnancy and into the postpartum period (p. 64).

Homocysteine screening of at-risk family members of individuals who are the first in their families to be diagnosed with homocystinuria is recommended (p. 58).

Morris AA, Kožich V, Santra S, et al. Guidelines for the diagnosis and management of cystathionine beta-synthase deficiency. J Inherit Metab Dis. 2017;40(1):49-74. doi:10.1007/s10545-016-9979-0

Son, et al.

In the article titled "Hyperhomocysteinemia," the authors state that the use of homocysteine testing remains controversial for those who do not exhibit the signs and symptoms of homocystinuria.

Son P, Lewis L. Hyperhomocysteinemia. [Updated 2022 May 8]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2025 Jan-. Available from: https://www.ncbi.nlm.nih.gov/books/NBK554408/

British Society for Haematology

The "Guidelines for the diagnosis and treatment of cobalamin and folate disorders" (2014) recommend serum cobalamin (vitamin B12) is the first-line test for evaluating suspected vitamin B12 deficiency, with plasma methylmalonic acid (MMA) as a second-line test. The guideline notes that plasma homocysteine may be considered as a second-line test, but that it is not as specific as MMA (p. 496).

Devalia V, Hamilton MS, Molloy AM; British Committee for Standards in Haematology. Guidelines for the diagnosis and treatment of cobalamin and folate disorders. Br J Haematol. 2014;166(4):496-513. doi: 10.1111/bjh.12959

American Academy of Family Physicians (AAFP)

In "Vitamin B12 Deficiency - Recognition and Management" (2017), the key recommendations for practice include the statement that serum methylmalonic acid may be used to further evaluate suspected Vitamin B12 deficiency when serum levels are normal or inconclusive. There is no recommendation made to measure homocysteine levels in this context (p. 388).

Langan RC, Goodbred AJ. Vitamin B12 Deficiency: Recognition and Management. Am Fam Physician. 2017 Sep 15;96(6):384-389. PMID: 28925645

Centers for Medicare & Medicaid Services (CMS)

The CMS local coverage determination (LCD) entitled "Assays for Vitamins and Metabolic Function" states that the frequency for testing of serum/plasma homocysteine is limited to once per year based upon review of utilization data. There may be circumstances that warrant testing more frequently, however, the expectation is that members do not routinely require the maximum frequency of testing.

Centers for Medicare & Medicaid Services. Assays for vitamins and metabolic function (LCD L34914). Revision effective date: July 1, 2020. https://www.cms.gov/medicare-coverage-database/view/lcd.aspx?lcdid=34914&ver=68&bc=0

DEFINITIONS

1. **High myopia** is defined by the American Association for Pediatric Ophthalmology & Strabismus as near-sightedness of -6.00 diopters or greater or an axial length greater than 26.5mm.

2. **Marfanoid features**, or marfanoid habitus, refers to any of the features that typically are associated with Marfan Syndrome, including but not limited to disproportionately tall, slender build, abnormally long/slender fingers and toes, protruding or caving sternum, and scoliosis.

3. **Undernutrition** is a type of malnutrition defined by the WHO, using four types: wasting (low weight-for-height), stunting (low height-for-age) and underweight (low weight-for-age), and micronutrient-related malnutrition, which includes micronutrient deficiencies (a lack of important vitamins and minerals) or micronutrient excess (e.g., obesity).

ADDITIONAL REFERENCES

1. Adam MP, Ardinger HH, Pagon RA, et al., editors. GeneReviews [Internet]. Seattle (WA): University of Washington, Seattle; 1993-2025. Available from: https://www.ncbi.nlm.nih.gov/books/NBK1116/
2. Online Mendelian Inheritance in Man, OMIM. McKusick-Nathans Institute of Genetic Medicine, Johns Hopkins University (Baltimore, MD). World Wide Web URL: https://omim.org/
3. MedlinePlus [Internet]. Bethesda (MD): National Library of Medicine (US). Available from: https://medlineplus.gov/genetics/.

Coding Implications

This clinical policy references Current Procedural Terminology (CPT®). CPT® is a registered trademark of the American Medical Association. All CPT codes and descriptions are copyrighted 2025, American Medical Association. All rights reserved. CPT codes and CPT descriptions are from the current manuals and those included herein are not intended to be all-inclusive and are included for informational purposes only. Codes referenced in this clinical policy are for informational purposes only. Inclusion or exclusion of any codes does not guarantee coverage. Providers should reference the most up-to-date sources of professional coding guidance prior to the submission of claims for reimbursement of covered services.

CPT® Codes	Description
82180	Ascorbic acid (Vitamin C), blood
82261	Biotinidase, each specimen
82286	Bradykinin

CPT® Codes	Description
82306	Vitamin D; 25 hydroxy, includes fraction(s), if performed
82310	Calcium; total
82330	Calcium; ionized
82331	Calcium; after calcium infusion test
82340	Calcium; urine quantitative, timed specimen
82355	Calculus; qualitative analysis
82380	Carotene
82382	Catecholamines; total urine
82387	Cathepsin-D
82390	Ceruloplasmin
82415	Chloramphenicol
82438	Chloride; other source
82485	Chondroitin B sulfate, quantitative
82495	Chromium
82525	Copper
82554	Creatine kinase (CK), (CPK); isoforms
82585	Cryofibrinogen
82607	Cyanocobalamin (Vitamin B-12);
82608	Cyanocobalamin (Vitamin B-12); unsaturated binding capacity
82638	Dibucaine number
82652	Vitamin D; 1, 25 dihydroxy, includes fraction(s), if performed
82664	Electrophoretic technique, not elsewhere specified
82693	Ethylene glycol
82696	Etiocholanolone
82728	Ferritin
82746	Folic acid; serum
82747	Folic acid; RBC
82759	Galactokinase, RBC
82776	Galactose-1-phosphate uridyl transferase; screen
82777	Galectin-3
82800	Gases, blood, pH only
82810	Gases, blood, O2 saturation only, by direct measurement, except pulse oximetry

CPT® Codes	Description
82938	Gastrin after secretin stimulation
82965	Glutamate dehydrogenase
83012	Haptoglobin; phenotypes
83033	Hemoglobin; F (fetal), qualitative
83060	Hemoglobin; sulfhemoglobin, quantitative
83065	Hemoglobin; thermolabile
83491	Hydroxycorticosteroids, 17- (17-OHCS)
83500	Hydroxyproline; free
83505	Hydroxyproline; total
83528	Intrinsic factor
83540	Iron
83550	Iron binding capacity
83570	Isocitric dehydrogenase (IDH)
83582	Ketogenic steroids, fractionation
83632	Lactogen, human placental (HPL) human chorionic somatomammotropin
83633	Lactose, urine, qualitative
83735	Magnesium
83775	Malate dehydrogenase
83789	Mass spectrometry and tandem mass spectrometry (eg, MS, MS/MS, MALDI, MS-TOF, QTOF), non-drug analyte(s) not elsewhere specified, qualitative or quantitative, each specimen
83873	Myelin basic protein, cerebrospinal fluid
83915	Nucleotidase 5'-
83916	Oligoclonal immune (oligoclonal bands)
83918	Organic acids; total, quantitative, each specimen
83919	Organic acids; qualitative, each specimen
83937	Osteocalcin (bone g1a protein)
83951	Oncoprotein; des-gamma-carboxy-prothrombin (DCP)
83987	pH; exhaled breath condensate
84078	Phosphatase, alkaline; heat stable (total not included)
84081	Phosphatidylglycerol
84087	Phosphohexose isomerase
84106	Porphobilinogen, urine; qualitative

CPT® Codes	Description
84110	Porphobilinogen, urine; quantitative
84119	Porphyrins, urine; qualitative
84120	Porphyrins, urine; quantitation and fractionation
84126	Porphyrins, feces, quantitative
84132	Potassium; serum, plasma or whole blood
84133	Potassium; urine
84181	Protein; Western Blot, with interpretation and report, blood or other body fluid
84207	Pyridoxal phosphate (Vitamin B-6)
84235	Receptor assay; endocrine, other than estrogen or progesterone (specify hormone)
84238	Receptor assay; non-endocrine (specify receptor)
84252	Riboflavin (Vitamin B-2)
84255	Selenium
84275	Sialic acid
84302	Sodium; other source
84311	Spectrophotometry, analyte not elsewhere specified
84315	Specific gravity (except urine)
84375	Sugars, chromatographic, TLC or paper chromatography
84425	Thiamine (Vitamin B-1)
84430	Thiocyanate
84431	Thromboxane metabolite(s), including thromboxane if performed, urine
84446	Tocopherol alpha (Vitamin E)
84449	Transcortin (cortisol binding globulin)
84466	Transferrin
84485	Trypsin; duodenal fluid
84525	Urea nitrogen; semiquantitative (eg, reagent strip test)
84578	Urobilinogen, urine; qualitative
84586	Vasoactive intestinal peptide (VIP)
84588	Vasopressin (antidiuretic hormone, ADH)
84590	Vitamin A
84591	Vitamin, not otherwise specified
84597	Vitamin K
84600	Volatiles (eg, acetic anhydride, diethylether)

CPT® Codes	Description
84620	Xylose absorption test, blood and/or urine
84630	Zinc

Reviews, Revisions, and Approvals	Revision Date	Approval Date
Policy developed.	1/26	1/26

Important Reminder

This clinical policy has been developed by appropriately experienced and licensed health care professionals based on a review and consideration of currently available generally accepted standards of medical practice; peer-reviewed medical literature; government agency/program approval status; evidence-based guidelines and positions of leading national health professional organizations; views of physicians practicing in relevant clinical areas affected by this clinical policy; and other available clinical information. The Health Plan makes no representations and accepts no liability with respect to the content of any external information used or relied upon in developing this clinical policy. This clinical policy is consistent with standards of medical practice current at the time that this clinical policy was approved. "Health Plan" means a health plan that has adopted this clinical policy and that is operated or administered, in whole or in part, by Centene Management Company, LLC, or any of such health plan's affiliates, as applicable.

The purpose of this clinical policy is to provide a guide to medical necessity, which is a component of the guidelines used to assist in making coverage decisions and administering benefits. It does not constitute a contract or guarantee regarding payment or results. Coverage decisions and the administration of benefits are subject to all terms, conditions, exclusions and limitations of the coverage documents (e.g., evidence of coverage, certificate of coverage, policy, contract of insurance, etc.), as well as to state and federal requirements and applicable Health Plan-level administrative policies and procedures.

This clinical policy is effective as of the date determined by the Health Plan. The date of posting may not be the effective date of this clinical policy. This clinical policy may be subject to applicable legal and regulatory requirements relating to provider notification. If there is a discrepancy between the effective date of this clinical policy and any applicable legal or regulatory requirement, the requirements of law and regulation shall govern. The Health Plan retains the right to change, amend or withdraw this clinical policy, and additional clinical policies may be developed and adopted as needed, at any time.

This clinical policy does not constitute medical advice, medical treatment or medical care. It is not intended to dictate to providers how to practice medicine. Providers are expected to exercise professional medical judgment in providing the most appropriate care, and are solely responsible for the medical advice and treatment of members/enrollees. This clinical policy is not intended to recommend treatment for members/enrollees. Members/enrollees should consult with their treating physician in connection with diagnosis and treatment decisions.

Providers referred to in this clinical policy are independent contractors who exercise independent judgment and over whom the Health Plan has no control or right of control. Providers are not agents or employees of the Health Plan.

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Note: For Medicaid members/enrollees, when state Medicaid coverage provisions conflict with the coverage provisions in this clinical policy, state Medicaid coverage provisions take precedence. Please refer to the state Medicaid manual for any coverage provisions pertaining to this clinical policy.

Note: For Medicare members/enrollees, to ensure consistency with the Medicare National Coverage Determinations (NCD) and Local Coverage Determinations (LCD), all applicable NCDs, LCDs, and Medicare Coverage Articles should be reviewed prior to applying the criteria set forth in this clinical policy. Refer to the CMS website at http://www.cms.gov for additional information.