

## Clinical Policy: Measurement of Serum 1,25-dihydroxyvitamin D

Reference Number: PA.CP.MP.152

Plan Effective Date: 05/2018

Date of Last Revision: 10/2024

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### Description

Vitamin D is metabolized in the liver to 25-hydroxyvitamin D [25(OH)D], also known as calcidiol, and then in the kidney to 1,25-dihydroxyvitamin D [1,25(OH)2D], also known as calcitriol. 25(OH)D is the major circulating form of vitamin D while 1,25(OH)2D is the active form of vitamin D. In individuals at risk for vitamin D deficiency, the best method for determining a person's vitamin D status is to measure a 25(OH)D concentration. Measurement of 1,25(OH)2D is not useful for monitoring the vitamin D status, as it does not reflect vitamin D reserves.<sup>1</sup> This policy addresses when measurement of 1,25(OH)2D is appropriate and medically necessary.

### Policy/Criteria

- I. It is the policy of PA Health & Wellness (PHW), that measurement of serum 1,25(OH)2D (CPT 82652) is **medically necessary** for monitoring certain conditions, such as acquired and inherited disorders of vitamin D and phosphate metabolism, including any of the following indications:
  - A. Chronic kidney disease;
  - B. Hereditary phosphate-losing disorders;
  - C. Oncogenic osteomalacia;
  - D. Pseudovitamin D-deficiency rickets;
  - E. Vitamin D-resistant rickets;
  - F. Chronic granuloma-forming disorders (e.g., sarcoidosis and some lymphomas);
  - G. Hyperparathyroidism.
  
- II. It is the policy of PHW that measurement of serum 1,25(OH)2D for routine screening of average risk, asymptomatic individuals is **not medically necessary**.

### Background

Vitamin D or calciferol, is a fat-soluble vitamin that plays an important role in calcium homeostasis and bone health. Vitamin D comes in two forms, D<sub>2</sub> and D<sub>3</sub>. It is unique among hormones because the major source of vitamin D is exposure to natural sunlight. Very few foods naturally contain, or are fortified with, vitamin D, thus, the major cause of vitamin D deficiency is inadequate exposure to sunlight.

The optimal serum 25(OH)D concentration for skeletal health is controversial, however, experts agree that levels lower than 20 ng/mL are suboptimal for skeletal health.<sup>5</sup> Vitamin D deficiency is defined by the Endocrine Society as a 25(OH)D below 20 ng/ml (50 nmol/liter).<sup>1</sup> Vitamin D deficiency results in abnormalities in calcium, phosphorus, and bone metabolism. It causes a decrease in the efficiency of intestinal calcium and phosphorus absorption of dietary calcium and phosphorus, resulting in an increase in parathyroid hormone (PTH) levels. Secondary hyperparathyroidism maintains serum calcium in the normal range at the expense of mobilizing calcium from the skeleton and increasing phosphorus wasting in the kidneys.

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Screening for Vitamin D deficiency is recommended for individuals at risk, such as those with osteomalacia, osteoporosis, chronic kidney disease, hepatic failure, malabsorption syndromes, hyperparathyroidism, African American and Hispanic children and adults, pregnant or lactating women, older adults with history of falls or non-traumatic fractures, obese children or adults (BMI greater than 30 kg/m<sup>2</sup>), granuloma-forming disorders, and some lymphomas.<sup>1</sup>

Circulating 25(OH)D is the best indicator to monitor for vitamin D status as it is the main circulating form of vitamin D and has a half-life of two to three weeks. In contrast, 1,25(OH)2D, has a much shorter half-life of about four hours, circulates in much lower concentrations than 25(OH)D, and is susceptible to fluctuations induced by PTH in response to subtle changes in calcium levels. Serum 1,25(OH)2D is frequently either normal or even elevated in those with vitamin D deficiency, due to secondary hyperparathyroidism.<sup>1</sup>

#### *The Endocrine Society*

The Endocrine Society recommends using the serum circulating 25-hydroxyvitamin D [25(OH)D] level, measured by a reliable assay, to evaluate vitamin D status in patients who are at risk for vitamin D deficiency and in whom a prompt response to optimization of vitamin D status could be expected. They note further, 1,25(OH)2D measurement does not reflect vitamin D status as levels are tightly regulated by serum levels of PTH, calcium, and phosphate. Serum 1,25(OH)2D does not reflect vitamin D reserves, and measurement of 1,25(OH)2D is not useful for monitoring the vitamin D status of patients. Serum 1,25(OH)2D is frequently either normal or even elevated in those with vitamin D deficiency, due to secondary hyperparathyroidism. Measurement of 1,25(OH)2D is useful in acquired and inherited 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, as well as chronic granuloma-forming disorders such as sarcoidosis and some lymphomas.<sup>1</sup>

#### *United States Preventive Services Task Force (USPSTF)*

The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of screening for vitamin D deficiency in asymptomatic community-dwelling, nonpregnant adults.<sup>2</sup>

#### *American College of Obstetricians and Gynecologists (ACOG)*

At this time, there is insufficient evidence to support a recommendation for screening all pregnant women for vitamin D deficiency. For pregnant women thought to be at increased risk of vitamin D deficiency, maternal serum 25-hydroxyvitamin D levels can be considered and should be interpreted in the context of the individual clinical circumstance.<sup>3</sup>

### Coding Implications

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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
82652	Vitamin D; 1, 25 dihydroxy, includes fraction(s), if performed

HCPCS Codes	Description
N/A	

### ICD-10-CM Diagnosis Codes that Support Coverage Criteria

ICD-10-CM Code	Description
A15.0-A19.9	Tuberculosis
C81.00- C81.99	Hodgkin lymphoma
C82.00- C82.99	Follicular lymphoma
C83.00- C83.99	Non-follicular lymphoma
C84.00- C84.99	Mature T/NK-cell lymphomas
C88.0-C88.9	Malignant immunoproliferative diseases and certain other B-cell lymphomas
D86.0-D86.9	Sarcoidosis
E20.0	Idiopathic hypoparathyroidism
E20.8	Other hypoparathyroidism
E21.0-E21.5	Hyperparathyroidism and other disorders of parathyroid gland
E55.0	Rickets, active
E83.30- E83.39	Disorder of phosphorus metabolism and phosphatases
E83.50- E83.59	Disorders of calcium metabolism
E89.2	Postprocedural hypoparathyroidism
M83.8	Other adult osteomalacia
M83.9	Adult osteomalacia, unspecified
N18.1-N18.9	Chronic kidney disease (CKD)
N25.0	Renal osteodystrophy
N25.81	Secondary hyperparathyroidism of renal origin
P37.0	Congenital tuberculosis

Reviews, Revisions, and Approvals	Revision Date	Approval Date
Policy developed	04/18	09/24/18

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Reviews, Revisions, and Approvals	Revision Date	Approval Date
Removed CPT code 82306 as the policy does not apply to this test. References reviewed and updated.	12/18	
References reviewed and updated. Code E20.00 corrected to E20.0	06/2020	
Changed “member” to “member/enrollee” throughout policy. References reviewed and updated.	6/3/2021	8/6/2021
Annual review. Expanded ICD-10 code range for tuberculosis from A15.0-A15.5 to A15.0-A19.9. Added N25.81 as a code supporting coverage criteria. Changed “review date” in the header to “date of last revision” and “date” in the revision log header to “revision date.” References reviewed, reformatted, and updated. Reviewed by specialist.	12/22/2021	
Annual review. References reviewed and updated.	2/21/2023	
Annual review. Added criteria I.G. Hyperparathyroidism. Added ICD-10 codes E89.2, M83.8, and M83.9. References reviewed and updated. Internal and external specialist review.	09/2023	11/2023
Annual review. References reviewed and updated.	10/2024	

### References

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11. Endocrine Society. Choosing Wisely. Don't routinely measure 1,25-dihydroxyvitamin D unless the patient has hypercalcemia or decreased kidney function. <https://www.aafp.org/pubs/afp/collections/choosing-wisely/140.html>. Published October 16, 2013. Accessed August 15, 2024.
12. García-Pascual L, Barahona MJ, Perea V, Simó R. Serum 1,25-Dihydroxyvitamin D as a Biomarker of the Absence of Hypercalciuria in Postsurgical Hypoparathyroidism. *J Clin Endocrinol Metab*. 2017;102(1):259-266. doi:10.1210/jc.2016-2987