



MEDICAL COVERAGE GUIDELINES  
SECTION: LABORATORY

ORIGINAL EFFECTIVE DATE: 10/27/15  
LAST REVIEW DATE: 01/22/19  
LAST CRITERIA REVISION DATE:  
ARCHIVE DATE:

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## BONE TURNOVER MARKERS

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Non-Discrimination Statement and Multi-Language Interpreter Services information are located at the end of this document.

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.

This Medical Coverage Guideline provides information related to coverage determinations only and does not imply that a service or treatment is clinically appropriate or inappropriate. The provider and the member are responsible for all decisions regarding the appropriateness of care. Providers should provide BCBSAZ complete medical rationale when requesting any exceptions to these guidelines.

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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## **BONE TURNOVER MARKERS (cont.)**

### **Description:**

Bone turnover markers are biochemical markers of either bone formation or bone resorption. Commercially available tests are available to assess some of these markers in urine and/or serum by high performance liquid chromatography (HPLC) or immunoassay. Assessment of bone turnover markers is proposed to supplement bone mineral density (BMD) measurement in the diagnosis of osteoporosis, and aid in treatment decisions. Bone turnover markers could also potentially be used to evaluate treatment effectiveness before changes in BMD can be observed. Bone turnover markers have also been investigated as a tool for the management of individuals with conditions associated with high rates of bone turnover such as Paget's disease, primary hyperparathyroidism and renal osteodystrophy.

After cessation of growth, bone is in a constant state of remodeling or turnover. Bone remodeling consists of bone resorption followed by new bone formation. This constant turnover helps keep bones healthy. Normally, the turnover is balanced. In certain conditions resorption exceeds formation and bone loss occurs. During the turnover process, collagen cross links or bone turnover markers are released. Resorption markers are measured in urine and formation markers are measured in serum.

Examples of collagen cross links/bone turnover markers are as follows:

<b>Formation Markers</b>	<b>Resorption Markers</b>
Serum osteocalcin (OC)	Serum and urinary hydroxyproline (Hyp)
Serum total alkaline phosphatase (ALP)	Urinary total pyridinoline (Pyr)
Serum bone-specific alkaline phosphatase (B-ALP)	Urinary total deoxypyridinoline (dPyr)
Serum procollagen I carboxyterminal propeptide (PICP)	Urinary-free pyridinoline (f-Pyr, also known as Pylilinks®)
Serum procollagen type I N-terminal propeptide (PINP)	Urinary-free deoxypyridinoline (f-dPyr, also known as Pylilinks-D®)
Bone sialoprotein	Serum and urinary collagen type 1 cross-linked N-telopeptide (NTx, also known as Osteomark®)  Serum and urinary collagen type 1 cross-linked C-telopeptide (CTX, also known as Cross Laps®)  Serum carboxyterminal telopeptide of type 1 collagen (ITCP)  Tartrate-resistant acid phosphatase (TRAP or TRACP)



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## BONE TURNOVER MARKERS (cont.)

### Criteria:

- Measurement of bone turnover markers in the diagnosis and management of osteoporosis is considered ***experimental or investigational*** based upon insufficient scientific evidence to permit conclusions concerning the effect on health outcomes.
- Measurement of bone turnover markers in the management of individuals with the following conditions associated with high rates of bone turnover is considered ***experimental or investigational*** based upon insufficient scientific evidence to permit conclusions concerning the effect on health outcomes.

These conditions include, *but are not limited to*:

- Paget's disease
- Primary hyperparathyroidism
- Renal osteodystrophy

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### Resources:

Literature reviewed 01/30/18. We do not include marketing materials, poster boards and non-published literature in our review.

The BCBS Association Medical Policy Reference Manual (MPRM) policy is included in our guideline review. References cited in the MPRM policy are not duplicated on this guideline.

Resources prior to 11/26/13 may be requested from the BCBSAZ Medical Policy and Technology Research Department.

1. 2.04.15 BCBS Association Medical Policy Reference Manual. Bone Turnover Markers for Diagnosis and Management of Osteoporosis. Re-issue date 12/14/2017, issue date 07/16/1999.



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## BONE TURNOVER MARKERS (cont.)

### Non-Discrimination Statement:

Blue Cross Blue Shield of Arizona (BCBSAZ) complies with applicable Federal civil rights laws and does not discriminate on the basis of race, color, national origin, age, disability or sex. BCBSAZ provides appropriate free aids and services, such as qualified interpreters and written information in other formats, to people with disabilities to communicate effectively with us. BCBSAZ also provides free language services to people whose primary language is not English, such as qualified interpreters and information written in other languages. If you need these services, call (602) 864-4884 for Spanish and (877) 475-4799 for all other languages and other aids and services.

If you believe that BCBSAZ has failed to provide these services or discriminated in another way on the basis of race, color, national origin, age, disability or sex, you can file a grievance with: BCBSAZ's Civil Rights Coordinator, Attn: Civil Rights Coordinator, Blue Cross Blue Shield of Arizona, P.O. Box 13466, Phoenix, AZ 85002-3466, (602) 864-2288, TTY/TDD (602) 864-4823, [crc@azblue.com](mailto:crc@azblue.com). You can file a grievance in person or by mail or email. If you need help filing a grievance BCBSAZ's Civil Rights Coordinator is available to help you. You can also file a civil rights complaint with the U.S. Department of Health and Human Services, Office for Civil Rights electronically through the Office for Civil Rights Complaint Portal, available at <https://ocrportal.hhs.gov/ocr/portal/lobby.jsf>, or by mail or phone at: U.S. Department of Health and Human Services, 200 Independence Avenue SW., Room 509F, HHH Building, Washington, DC 20201, 1-800-368-1019, 800-537-7697 (TDD). Complaint forms are available at <http://www.hhs.gov/ocr/office/file/index.html>

### Multi-Language Interpreter Services:

Spanish: Si usted, o alguien a quien usted está ayudando, tiene preguntas acerca de Blue Cross Blue Shield of Arizona, tiene derecho a obtener ayuda e información en su idioma sin costo alguno. Para hablar con un intérprete, llame al 602-864-4884.

Navajo: Díí kwe'é atah nilínígíí Blue Cross Blue Shield of Arizona haada yit'éego bina'idííkidgo éí doodago Háida bíjá anilyeedígíí t'áadoo le'é yina'idííkidgo beehaz'áanii hólo díí t'áa hazaadk'ehjí háká a'doowolgo bee haz'á doo baqah ilínígóó. Ata' halne'ígíí kojí' bich'í' hodíilnih 877-475-4799.

Chinese: 如果您，或是您正在協助的對象，有關於插入項目的名稱 Blue Cross Blue Shield of Arizona 方面的問題，您有權利免費以您的母語得到幫助和訊息。洽詢一位翻譯員，請撥電話 在此插入數字 877-475-4799。

Vietnamese: Nếu quý vị, hay người mà quý vị đang giúp đỡ, có câu hỏi về Blue Cross Blue Shield of Arizona quý vị sẽ có quyền được giúp và có thêm thông tin bằng ngôn ngữ của mình miễn phí. Để nói chuyện với một thông dịch viên, xin gọi 877-475-4799.

### Arabic:

إن كان لديك أو لدى شخص تساعد أسئلة بخصوص Blue Cross Blue Shield of Arizona، فلديك الحق في الحصول على المساعدة والمعلومات الضرورية بلغتك من دون أية تكلفة. للتحدث مع مترجم اتصل بـ 877-475-4799.

