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1.0 Description of the Procedure, Product, or Service

Bone mass measurement (BMM) is a radiologic procedure performed for the purpose of quantifying bone mass, measuring changes in bone mass over time, or assessing bone quality. BMM can be used to identify low bone mineral content, to assess an individual's risk of fracture, or to determine the efficacy of drug therapy for low bone mineral content.

According to The International Society for Clinical Densitometry (ISCD) - 2007 Pediatric Official Positions, the diagnosis of osteoporosis in children and adolescents (ages 5-19) should not be made on the basis of densitometric criteria alone. ISCD recommends that instead of T-scores, ethnic or race adjusted Z-scores must be used. Low bone mineral content (BMC) or bone mineral density (BMD) is defined as a BMC or areal BMD Z-score that is less than or equal to -2.0, adjusted for age, gender and body size, as appropriate. Low bone mineral content or bone mineral density for chronologic age is the preferred term when BMC or BMD Z-scores are less than or equal to -2.0.

The following methods are established procedures of bone mass measurements of the axial (central) or peripheral skeleton:

- a. Dual Energy X-Ray Absorptiometry (DXA);
- b. Quantitative Computed Tomography (QCT); and
- c. Ultrasound bone density measurement.

2.0 Eligible Recipients

2.1 General Provisions

To be eligible, N.C. Health Choice (NCHC) recipients must be enrolled on the date of service.

3.0 When the Procedure, Product, or Service Is Covered

3.1 General Criteria

NCHC covers procedures, products, and services related to this policy when they are medically necessary and

- a. the procedure, product, or service is individualized, specific, and consistent with symptoms or confirmed diagnosis of the illness or injury under treatment, and not in excess of the recipient's needs;
- b. the procedure, product, or service can be safely furnished, and no equally effective and more conservative or less costly treatment is available; **AND**

- c. the procedure, product, or service is furnished in a manner not primarily intended for the convenience of the recipient, the recipient's caretaker, or the provider.

3.2 Specific Criteria

NCHC covers BMM when it is medically necessary and

- a. the procedure is ordered and provided in accordance with 42 CFR § 440.30(a)(b); and
- b. the procedure is performed with a DXA system (77080) in accordance with 42 CFR § 410.31(a)(2).

NCHC covers BMM when the medical record documents that the recipient meets the medical indications for **at least one** of the categories listed below:

- a. A female recipient determined to be estrogen deficient and at clinical risk for low bone mineral content based on medical history and other findings;
- b. A recipient with vertebral abnormalities, as demonstrated by an X-ray, that are indicative of low bone mineral content, or vertebral fracture;
- c. A recipient at risk for low bone mineral content due to long-term medication:
 - 1. Long-term (anticipated or actual) glucocorticoid therapy equivalent to 5.0 mg of prednisone, or greater, per day, for three months or greater
 - 2. Long-term or excess thyroid replacement therapy with evidence for hyperthyroidism
 - 3. Long-term anti-convulsant therapy for three months or greater
 - 4. Long-term heparin therapy for one month or greater
 - 5. Long-term Depo-Provera therapy (for two years or greater)
- d. A recipient with primary hyperparathyroidism;
- e. A recipient being monitored to assess the response to or efficacy of FDA-approved drug therapy for low bone mineral content;
- f. A recipient with a history of low trauma fracture; or
- g. A recipient with other conditions, or currently receiving medical therapies, known to cause low bone mass including celiac disease, cerebral palsy, and hypogonadism.

3.3 Monitoring of Drug Therapy for Low Bone Mineral Content

The only BMM test NCHC covers for the monitoring of drug therapy for low bone mineral content is CPT code 77080. Refer to **Attachment A (C)** for description.

4.0 When the Procedure, Product, or Service Is Not Covered

4.1 General Criteria

Procedures, products, and services related to this policy are not covered when

- a. the recipient does not meet the eligibility requirements listed in **Section 2.0**;
- b. the recipient does not meet the medical necessity criteria listed in **Section 3.0**;
- c. the procedure, product, or service unnecessarily duplicates another provider's procedure, product, or service; or
- d. the procedure, product, or service is experimental or investigational.

4.2 Specific Criteria

Bone Mass Measurement is not covered when the criteria in **Subsection 3.2** are not met.

NCHC does not cover BMM for the following procedures as they are not considered reasonable and necessary.

CPT Code	Description
77082	Dual-energy X-ray absorptiometry (DXA), bone density study, 1 or more sites; vertebral fracture assessment
77083	Radiographic absorptiometry (eg, photodensitometry, radiogrammetry), 1 or more sites
78350	Bone density (bone mineral content) study, 1 or more sites; single photon absorptiometry
78351	Bone density (bone mineral content) study, 1 or more sites; dual photon absorptiometry, 1 or more sites

5.0 Requirements for and Limitations on Coverage

5.1 Prior Approval

Prior approval is required for Bone Mass Measurement procedures.

5.2 Prior Approval Requirements

The provider(s) shall submit to DMA's designee the following:

- a. the prior approval request; and
- b. all health care records and any other records that support the NCHC recipient has met the specific criteria in **Subsection 3.2** of this policy.

5.3 Limitations

- a. BMM is limited to one test every two years for recipients at risk for low bone mass (at least 23 months must have passed since the month the last covered BMM was performed).
- b. An additional BMM may be covered more frequently than every 23 months for the following conditions:
 - 1. Long-term glucocorticoid therapy of 5.0 mg of prednisone or more per day of more than three months' duration;
 - 2. Long-term anticonvulsant therapy of more than three months' duration; or
 - 3. Monitoring with uncorrected primary hyperparathyroidism.

Note: Refer to **Attachment A (B)** for the diagnosis codes.

5.4 DXA Interpretation and Reporting in Children and Adolescents

According to ISCD - 2007 Pediatric Official Positions, DXA Interpretation and Reporting in Children and Adolescents includes:

- a. DXA is the preferred method for assessing BMC and areal BMD;
- b. The posteroanterior (PA) spine and total body less head (TBLH) are the most accurate and reproducible skeletal sites for performing BMC and areal BMD measurements;
- c. Soft tissue measures in conjunction with whole body scans may be helpful in evaluating recipients with chronic conditions associated with malnutrition (such as anorexia nervosa, inflammatory bowel disease, cystic fibrosis), or with both muscle and skeletal deficits (such as idiopathic juvenile osteoporosis);
- d. The hip (including total hip and proximal femur) is not a reliable site for measurement in growing children due to significant variability in skeletal development and lack of reproducible regions (of interest);
- e. In children with linear growth or maturational delay, spine and TBLH BMC and areal BMD results should be adjusted for absolute height or height age, or compared to pediatric reference data that provide age-, gender-, and height-specific Z-scores;
- f. An appropriate reference data set must include a sample of the general healthy population sufficiently large to characterize the normal variability in bone measures that takes into consideration gender, age, and race/ethnicity; and
- g. When upgrading densitometer instrumentation or software, it is essential to use reference data valid for the hardware and software technological updates.

5.5 Baseline DXA Report

According to ISCD - 2007 Pediatric Official Positions, Baseline DXA reports must contain the following information:

- a. DXA manufacturer, model, and software version;
- b. Referring physician;
- c. Recipient age, gender, race or ethnicity, weight, and height;
- d. Relevant medical history including previous fractures;
- e. Indication for study;
- f. Bone age results, if available;
- g. Technical quality;
- h. BMC and areal BMD;
- i. BMC and areal BMD Z-score;
- j. Source of reference data for Z-score calculations;
- k. Adjustments made for growth and maturation;
- l. Interpretation; and
- m. Recommendations for the necessity and timing of the next DXA study are optional.

Note: The term “osteopenia” must not appear in pediatric DXA reports; and

The term “osteoporosis” must not appear in pediatric DXA reports without knowledge of clinically significant fracture history.

6.0 Providers Eligible to Bill for the Procedure, Product, or Service

To be eligible to bill for procedures, products, and services related to this policy, providers shall

- a. meet NCHC qualifications for participation;
- b. be currently enrolled with NCHC; **AND**
- c. bill only for procedures, products, and services that are within the scope of their clinical practice, as defined by the appropriate licensing entity.

7.0 Additional Requirements

7.1 Compliance

Providers shall comply with all applicable federal, state, and local laws and regulations, including the Health Insurance Portability and Accountability Act (HIPAA) and record retention requirements.

8.0 Policy Implementation/Revision Information

Original Effective Date: July 1, 2010

Revision Information:

Date	Section Revised	Change
July 1, 2010		Policy Conversion: Implementation of Session Law 2009-451, Section 10.32 “NC HEALTH CHOICE/PROCEDURES FOR CHANGING MEDICAL POLICY.”
12/1/11	Throughout	Title of policy changed from Bone Mineral Density Studies to Bone Mass Measurement.
12/1/11	Section 1.0	Added description of Bone mass measurement (BMM). Added information related to diagnosing low bone mineral content in children and adolescents. Deleted description of Bone mineral density (BMD) studies.
12/1/11	Subsection 3.2	Added NCHC specific coverage criteria for BMM which includes policy guidelines. Deleted specific criteria regarding BMD studies.
12/1/11	Subsection 3.3	Added NCHC coverage limits for drug therapy monitoring of low bone mineral content. Deleted Policy Guidelines.
12/1/11	Subsection 4.2	Added specific noncoverage criteria for BMM including CPT codes not covered. Deleted BMD studies noncoverage criteria.
12/1/11	Subsection 5.1	Added requirement for Prior Approval for Bone Mass Measurement procedures.
12/1/11	Subsection 5.2	Added specific documentation required to obtain Prior Approval. Deleted documentation requirements regarding requesting BMM more frequently than every two years.

Date	Section Revised	Change
12/1/11	Subsection 5.3	Added limitations for BMM procedures.
12/1/11	Subsection 5.4	Added Dual energy X-ray absorptiometry (DXA) interpretation and reporting in children and adolescents.
12/1/11	Subsection 5.5	Added baseline DXA report requirements.
12/1/11	Attachment A, B.	Added the ICD-9-CM codes which permit BMM to be performed more than every 23 months.
12/1/11	Attachment A, C.	Added descriptions for covered CPT codes 77078, 77079, 77080, 77081 and 76977. Deleted CPT codes 77083, 78350, and 78351. Added Hospital revenue codes.
12/1/11	Attachment A, F.	Deleted recipient's home, Intermediate Care Facility, Skilled Nursing Facility.
12/1/11	Throughout	To be equivalent where applicable to NC DMA's Clinical Coverage Policy # 1K-2 under Session Law 2011-145 § 10.41.(b)

Attachment A: Claims-Related Information

Reimbursement requires compliance with all NCHC guidelines.

A. Claim Type

Professional (CMS-1500/837P transaction)

Institutional (UB-04/837I transaction)

B. Diagnosis Codes

Providers must bill the ICD-9-CM diagnosis codes(s) to the highest level of specificity that supports medical necessity.

The following primary diagnosis codes permit BMM to be performed more often than every 23 months.

ICD-9-CM Diagnosis Code	Description
V58.65	Long-term (current) use of steroids
V58.69*	Long-term (current) use of other medications
252.01	Primary hyperparathyroidism

*Use for anticonvulsant therapy of more than three months' duration; bill with the secondary diagnosis for epilepsy, 345.00 through 345.91, or other convulsions, 780.39.

C. Procedure Code(s)

CPT Code	Description
77078	Computed tomography, bone mineral density study, 1 or more sites; axial skeleton (eg, hips, pelvis, spine)
77079	Computed tomography, bone mineral density study, 1 or more sites; appendicular skeleton (peripheral) (eg, radius, wrist, heel)
77080	Dual energy X-ray absorptiometry (DXA), bone density study, 1 or more sites; axial skeleton (eg hips, pelvis, spine)
77081	Dual-energy X-ray absorptiometry (DXA), bone density study, 1 or more sites; appendicular skeleton (peripheral) (eg, radius, wrist, heel)
76977	Ultrasound bone density measurement and interpretation, peripheral site(s), any method

Hospitals

Revenue Code	Description
RC350	CT scan (CPT 77078, 77079)
RC352	CT scan: Body (CPT 77078, 77079)
RC359	CT scan: Other CT scans (CPT 77078, 77079)
RC400	Other imaging services (CPT 77080, 77081)
RC409	Other imaging services: Other imaging services (CPT 77080, 77081)
RC402	Other imaging services: Ultrasound (CPT 76977)

D. Modifiers

Providers are required to follow applicable modifier guidelines.

E. Billing Units

The appropriate procedure code(s) used determines the billing unit(s).

F. Place of Service

Inpatient Hospital, Outpatient Hospital, physician's office

G. Co-payments

Co-payment(s) may apply to covered prescription drugs and services.

H. Reimbursement

Providers shall bill their usual and customary charges.