
Overview of Osteoporosis Diagnosis and Treatment for Adults

A. Counsel all individuals on risk factors for osteoporosis

Osteoporosis, based on a bone mineral density test, is a “silent” risk factor for fracture just as hypertension is for stroke. Nearly one in two women and one in four men will experience an osteoporosis related fracture after age 50. Risk factors for osteoporosis include: a family history of osteoporosis and/or fracture; prior fracture after age 50; height loss, steroid medications, and rheumatoid arthritis, among others.

B. Perform evaluation for osteoporosis using Bone Mineral Density (BMD) testing for the following at-risk populations:

- Women or men who have broken bones, with or without trauma after age 50
- All women 65 and older
- All men 70 and older
- Women younger than 65 who have reached menopause and have risk factors for osteoporosis
- Men age 50 to 69 with risk factors for osteoporosis

No routine BMD testing is recommended for children, premenopausal women, or men younger than 50.

C. Counsel all patients on the strategies to promote bone health including nutrition and lifestyle modifications. Also, when appropriate, prescribe FDA-approved medications.

- Advise all patients to eat a varied, nutrient-rich diet, including generous amounts of fruits and vegetables.
- Counsel all patients to obtain the recommended dietary allowance (RDA) for calcium (1000 to 1200 mg a day), preferably from food sources. Include calcium supplements only if necessary.
- Recommend vitamin D intakes of 600 to 800 IU per day for healthy adults. This may require supplementation. Patients with osteoporosis may require more vitamin D.
- Advise patients to avoid smoking and to limit alcohol intake.
- Educate patients about safety precautions to reduce the risk of falls and related fractures.
- Recommend regular physical activity to include weight-bearing, muscle-strengthening, postural, and balance exercises. Consider a physical therapy consultation for patients with osteoporosis or a history of falls/ fractures.
- When appropriate, prescribe FDA-approved medications for osteoporosis.

FDA-Approved Osteoporosis Medications come in pill form, injection, or intravenous. The frequency of dosing will vary for each medication. Below are the listed treatment options:

Table 1: Drugs Used for Osteoporosis Treatment and Prevention

Drug Class	Drug Name	Delivery Route	Dosing Frequency
Bisphosphonate	Alendronate (Fosamax™)	Oral	Daily, weekly
Bisphosphonate	Ibandronate (Boniva™)	Oral, IV	Daily, weekly, monthly
Bisphosphonate	Risedronate (Actonel™)	Oral	Daily, weekly
Bisphosphonate	Zoledronic Acid (Reclast™)	IV	Annually
Biologic	Denosumab (Prolia™)	SC	Daily
PTH Related anabolic	Teriparatide (Forteo™)	SC	Daily
PTH Related anabolic	Abaloparatide (Tymlos™)	SC	Daily
SERM	Raloxifene (Evista™)	Oral	Daily
Estrogen and Estrogen/Progestin combination products	Multiple*	Oral, transdermal	Daily
Estrogen with SERM	Estrogens/Bazedoxifene* (Duavee™)	Oral	Daily
Anti-sclerostin monoclonal antibody	Romosozumab (Evenity™)	SC	Monthly

Abbreviations: IV: intravenous; PTH: parathyroid hormone; SC: subcutaneous; SERM: selective estrogen receptor modulator
**FDA approved for osteoporosis prevention, but not for osteoporosis treatment.*

Clinician's judgment and/or patient preferences may indicate type of treatment.

D. Select the following candidates for treatment with FDA-approved osteoporosis medications:

- All men as well as postmenopausal women who present with atraumatic vertebral or hip fracture
- Men and women with T-score ≤ -2.5 , at the femoral neck or spine, after appropriate evaluation to exclude secondary causes
- Low bone mass (T-score between -1.0 and -2.5 at the femoral neck or spine) and a 10-year probability of a hip fracture $\geq 3\%$ or a 10- year probability of a major osteoporosis-related fracture $\geq 20\%$ based on the US-adapted WHO algorithm in patients over 50 and not currently on osteoporosis medication (FRAX: <http://www.sheffield.ac.uk/FRAX>).