### Eligible Population

**Key Components**

- Age
- Sex
- Weight (kg)
- Height (cm)
- Previous fracture
- Parent fractured hip
- Current smoking
- Glucocorticoids
- Rheumatoid arthritis
- Secondary osteoporosis
  - [type 1 diabetes, osteogenesis imperfecta in adults, untreated long-standing hyperthyroidism, hypogonadism or premature menopause (<45 years), chronic malnutrition, or malabsorption, and chronic liver disease]
- Alcohol 3 or more units per day (see FRAX)
- Femoral neck BMD ($g/cm^2$)

**Frequency**

- Adult height assessments at periodic well exams

### Core Principles of Treatment and Prevention

| Dietary calcium 1200 mg/d and 800 - 1000 IU/d vitamin D$_3$ [B] |
| Weight-bearing exercise [A] |
| Address modifiable risk factors above |

### Patient Selection for Pharmacological Management Based on Risk

- Treat patients on corticosteroid therapy with a T-score ≤ -1.0. [A]
- Treat patients with a history of an osteoporotic fracture or fracture of the hip or spine. [A]
- Treat patients without a history of fractures but with a T-score of -2.5 or lower. [A]
- Treat patients with a T-score between -1.0 and -2.5 if FRAX major osteoporotic fracture probability is ≥ 20% or hip fracture probability is ≥ 3%. [D]

### Pharmacological Management

- Consider oral bisphosphonate therapy$^1$. A drug holiday may be considered after 3-5 years$^2$ in low-risk (6-10 years in high-risk).
- If not tolerated or ineffective, consider other agents.
- Consider referral to endocrine or bone and mineral metabolism specialist if patient does not tolerate treatment or shows progression or recurrent fracture after 2 years on treatment.

### Patients with fracture

- Calculate FRAX to predict probability of a major osteoporotic fracture:
  - If >20% probability, prescribe a drug to treat osteoporosis (e.g. bisphosphonate)
  - If <20% probability, obtain a BMD if not done in the past year. Re-calculate FRAX with BMD result, and treat as above.
- Fail prevention
  - Optimize calcium (1600 mg/d) and vitamin D$_3$ [cholecalciferol (1000 IU/d)] intake

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$^1$Use caution in patients with active upper GI disorders. Take medication on an empty stomach with water, remain upright, no food or beverage for 30 minutes, (60 minutes for Ibandronate).

$^2$J of Bone Metabolism Nov 2015. Drug Holidays and Principles of Monitoring

**Levels of Evidence for the most significant recommendations:**

- A = randomized controlled trials
- B = controlled trials, no randomization
- C = observational studies
- D = opinion of expert panel

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