Michigan Quality Improvement Consortium Guideline

Management and Prevention of Osteoporosis

The following guideline recommends assessment and management of patients to reduce fracture risk due to osteoporosis.

Eligible Population	Key Components	Recommendation and Level of Evidence	Frequency
Patients at potential risk for osteoporosis	Assessment	Assess risk factors to perform FRAX: 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) Vitamin D deficiency or low dietary calcium intake Inadequate physical activity Loss of height (1.5 inches) Family history of osteoporosis Depo-Provera use Aromatase inhibitor therapy Androgen inhibitor therapy Lupron therapy Perform bone mineral density (BMD) testing using DXA for: White women ≥ 65 years regardless of risk factors Men/women with fracture risk (10-year probability of fracture using FRAX of 9.3%) On corticosteroids Transplant Calculate FRAX to assess future fracture risk and to identify patients for BMD testing. Record result. CT scan for screening is not recommended.	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	There is insufficient evidence on the optimal screening interval in a woman with previous normal BMD
Patients requiring therapy to reduce high risk of non-traumatic fractures	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]** Patients without a history of fractures but with a T-score of -2.5 or lower. **[A]** 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%. **[A]**	
	Pharmacological Management	Consider oral bisphosphonate therapy[1]. A drug holiday may be considered after 3-5 years[2]. 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	Diagnosis and Treatment	Calculate FRAX and record result: If >20% prediction, prescribe a drug to treat osteoporosis (e.g. bisphosphonate) If <20% prediction, obtain a BMD if not done in the past year. Re-calculate FRAX with BMD result, and treat as above. Fall prevention Optimize calcium (1600 mg/d) and vitamin D_3 [cholecalciferol (1000 IU/d)] intake	

[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]Bisphosphonate drug holiday: who, when and how long

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

This guideline represents core management steps. It is based on The Guide to Clinical Preventive Services 2014, Recommendations of the U.S. Preventive Services Task Force (www.preventiveservices.ahrq.gov); and the Diagnosis and Treatment of Osteoporosis guideline, Institute for Clinical Systems Improvement, 2013 (www.icsi.org). Individual patient considerations and advances in medical science may supersede or modify these recommendations.