



Osteoporosis Across the Lifespan

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OSTEOPOROSIS IN RHODE ISLAND

Based on national data, it is estimated that nearly 50% of Rhode Islanders over the age of 50 suffer from osteoporosis or have low bone mass (LBM). This figure is projected to exceed 50% by 2010.¹ In other words, within 10 years, approximately half of patients over the age of 50 who walk into a physician's office in Rhode Island will have osteoporosis or be at high risk of developing this debilitating disease. Although osteoporosis has been identified as a female disease, an estimated one-third of these patients will be male.¹ Bone health is a lifetime issue since childhood skeletal development as well as middle and advanced age skeletal remodeling is influenced by similar factors. Prevention of osteoporosis should begin in childhood.²

ARE PHYSICIANS DISCUSSING OSTEOPOROSIS WITH PATIENTS?

According to a 1998 state survey, few Rhode Islanders discuss osteoporosis with their doctor or health care provider. For example, less than half (47%) of all women ages 18 and over remember such a discussion. The survey also indicates that even smaller proportions of underserved women do so:

- 24% of Hispanic women,
- 26% of women without health care coverage,
- 35% of Black non-Hispanic women,
- 40% of women living in a core city, and
- 43% of women who did not graduate from high school.

Core cities include Providence, Pawtucket, Central Falls, Woonsocket, and Newport. Age was also a factor:

71% of women between the ages of 55 and 64 have discussed osteoporosis with a health care provider, while only 39% of women 18 to 54 years old and 59% of women 65 and older have done so.³

WHY SHOULD A PHYSICIAN DISCUSS OSTEOPOROSIS WITH PATIENTS?

Osteoporosis should not be viewed as a disease that begins at the time of fracture. Osteoporosis prevention strategies should be used throughout a patient's lifespan, and diagnosis and

treatment are critical to reduce further damage, pain, and suffering.⁴ Additional reasons to incorporate osteoporosis education in a medical office visit include:

- Many prescription medications can lead to bone loss. (Table 1)
- Many illnesses predispose a patient to bone loss. (Table 1)
- Osteoporosis is a preventable and treatable disease.
- One in two women and one in four men over the age of 50 will experience an osteoporosis-related fracture in their lifetime.⁵

Table 1. Causes of Generalized Secondary Osteoporosis in Adults

Endocrine disease or metabolic causes	Nutritional conditions	Drugs	Disorders of collagen metabolism	Other
Hypogonadism	Malabsorption syndromes and malnutrition	Vitamin D toxicity	Osteogenesis imperfecta	Rheumatoid arthritis
Hyperadrenocorticism	Chronic liver disease	Phenytoin	Homocystinuria due to cystathionine deficiency	Myeloma and some cancers
Thyrotoxicosis	Gastric operations	Glucocorticoids	Ehlers-Danlos syndrome	Immobilization
Anorexia nervosa	Vitamin D deficiency	Phenobarbital	Marfan syndrome	Renal tubular acidosis
Hyperprolactinemia	Alcoholism	Excessive thyroid medication		Hypercalciuria
Porphyria		Heparin		COPD*
Hypophosphatasia in adults		Gonadotropin-releasing hormone antagonists		Organ transplantation
Diabetes mellitus, type 1				Cholestatic liver disease
Pregnancy				Mastocytosis
Hyperparathyroidism				Thalassemia
Acromegaly				Crohn's disease**

*COPD - chronic obstructive pulmonary disease
**Modified table

Source: Adapted from *Endocrine Pract* 2001;7:293-311

Table 2. Osteoporosis Risk Assessment Questionnaire

Are You at Risk for Osteoporosis? Complete the following questionnaire to determine your risk for developing osteoporosis.

QUESTION	YES	NO
1. Do you have a small, thin frame and/or are you Caucasian or Asian?	<input type="checkbox"/>	<input type="checkbox"/>
2. Have you or a member of your immediate family broken a bone as an adult?	<input type="checkbox"/>	<input type="checkbox"/>
3. Are you a postmenopausal women?	<input type="checkbox"/>	<input type="checkbox"/>
4. Have you had an early or surgically induced menopause?	<input type="checkbox"/>	<input type="checkbox"/>
5. Have you been taking high doses of thyroid medication or high or prolonged doses of cortisone-like drugs for asthma, arthritis, or other diseases?	<input type="checkbox"/>	<input type="checkbox"/>
6. Is your diet low in dairy products and other sources of calcium?	<input type="checkbox"/>	<input type="checkbox"/>
7. Are you physically inactive?	<input type="checkbox"/>	<input type="checkbox"/>
8. Do you smoke cigarettes or drink alcohol in excess?	<input type="checkbox"/>	<input type="checkbox"/>

The more times you answer "yes", the greater your risk for developing osteoporosis. Speak with your physician.

Source: Adapted from the National Osteoporosis Foundation brochure: Talking with your doctor about osteoporosis. Washington, DC. Revised May, 2002.

- A woman's risk of a hip fracture is equal to her risk of breast, uterine, and ovarian cancer combined.⁵
- Hip fractures result in 10% to 20% excess mortality within one year; additionally, up to 25% of hip fracture patients may require long-term nursing home care, and only a third fully regain their prefracture level of independence.
- Additional emotional and lifestyle consequences are likely:
 - Forced retirement
 - Loss of independence
 - Permanent disfigurement
 - Depression
 - Social isolation
 - Decreased well-being

DISCUSSING OSTEOPOROSIS WITH PATIENTS

Speaking with a patient about the prevention, diagnosis, and treatment of osteoporosis is an important patient care activity. However, time constraints within an office visit typically hinder accomplishing this goal. Tips to facilitate quick but thorough discussion of osteoporosis throughout the lifespan are outlined below. Many of these recommendations overlap with key messages of other chronic diseases such as heart disease, cancer, and diabetes mellitus. Any materials distributed to patients should be culturally competent and linguistically appropriate. Most agencies and organizations have materials available in multiple languages and low literacy levels. To obtain patient education materials visit the National Osteoporosis Foundation (NOF) and the US Department of Health and Human Service (USDHHS) websites, www.nof.org, www.healthfinder.gov, and www.4woman.gov.

TIPS TO FACILITATE DISCUSSION

Advise all patients to consume adequate amounts of calcium and vitamin D according to age and gender.

Provide reading materials and videos in the waiting area on healthy diet and specific conditions, such as lactose intolerance. Refer high-risk patients to a registered dietitian (RD) for intensive nutrition counseling. Stress key points on the importance of calcium and Vitamin

Table 3. Risk factors for Osteoporosis

- Personal history of fracture
- Current low bone mass
- Family history of fractures or osteoporosis
- Female
- Thin, small frame, and/or less than 127 lbs.
- Advanced age
- Caucasian or Asian, although all women including African Americans and Hispanic American are at significant risk as well
- Estrogen deficiency as a result of menopause, especially early or surgically induced (Women can lose up to 20 percent of their bone mass in the five to seven years following menopause, making them more susceptible to osteoporosis).
- Low testosterone levels in men
- Use of certain medications or presence of certain medical conditions (See Table 1)
- Abnormal absence of menstrual periods (i.e., amenorrhea)
- Anorexia nervosa
- Low calcium intake
- An inactive lifestyle
- Current cigarette smoking
- Excessive use of alcohol

Source: National Institutes of Health. Available at www.osteoporosis.org. Accessed September, 2002.

Table 4. Bone Mineral Density (BMD) Screening Guidelines

<p>National Osteoporosis Foundation⁶ (NOF), 1999</p>	<p>BMD testing should be performed on:</p> <ul style="list-style-type: none"> All women aged 65 and older regardless of additional risk factors All postmenopausal women under age 65 who have one or more additional risk factors for osteoporotic fracture (besides menopause) Postmenopausal women who present with fractures (to confirm diagnosis and determine disease severity) Women who are considering therapy for osteoporosis, if BMD testing would facilitate the decision Women who have been on hormone replacement therapy for prolonged periods
<p>U.S. Preventive Services Task Force⁹ (USPSTF), 2002</p>	<p>Women 65 years of age and older should be screened routinely for osteoporosis. Routine screening should begin at 60 years of age for women at increased risk for osteoporotic fractures. No recommendation for or against routine osteoporosis screening in postmenopausal women who are younger than 60 years of age or in women 60 to 64 years of age who are not at increased risk for osteoporotic fractures.</p>
<p>American Association of Clinical Endocrinologists⁷ (AAACE), 2001</p>	<p>The following patients should undergo assessment for postmenopausal osteoporosis:</p> <ul style="list-style-type: none"> All women 65 years old or older All adult women with a history of a fracture (or fractures) not caused by severe trauma Younger postmenopausal women who have clinical risk factors (who have a body weight of less than 127 lbs) or a family history of spine or hip fracture

D and their sources. For instance, explaining that three glasses of milk provides 900 of the 1000 mg of calcium recommended for an adult female (19 - 50 years old) simplifies the message for patients.

Advise all patients to participate in weight-bearing physical activity regularly, such as walking, jogging, dancing, stair climbing, or tennis.

Exercise contributes to achieving peak bone mass and may reduce the risk of falls and fractures in the elderly. Provide reading materials or videos in the waiting area on the benefits of exercise. Refer sedentary patients and patients with low bone mass

to a physical therapist to avoid an exercise-related injury and address fall prevention. The physical activities listed above are for the prevention of osteoporosis and should be modified for those at risk of bone fracture. Stress key points on the importance of exercise. For instance, exercise not only strengthens bones, it also reduces the risk of heart disease, stroke, many types of cancers, and obesity.

Advise all patients to avoid tobacco use.

Provide reading materials and videos in the waiting area on smoking cessation. Advise current smokers to quit and refer those that are motivated to a

tobacco cessation program. Stress key points on the dangers of tobacco use and remind patients that discontinuing tobacco use is the single most important action that they can take to protect their health.

Conduct an osteoporosis risk assessment.

Provide an Osteoporosis Risk Assessment Questionnaire⁶ (Table 2) at the time of check-in to be completed in the waiting area. Assess and comment on results of questionnaire. Consider all risk factors. (Table 3) Consider medications and illnesses that increase the risk of bone loss. (Table 1) Explain that "risk factors" for low bone mass are not sufficient for diagnosis of osteopenia or osteoporosis. Only bone mineral density (BMD) testing can accurately identify patients with low bone mass.⁷

Determine the need for a BMD Test.

Refer to NOF⁸, US Preventive Services Task Force (USPSTF)⁹ or American Association of Clinical Endocrinologists (AACE)⁷ screening guidelines. See below.

Select appropriate treatment. The commonly used definition of osteoporosis originated from the World Health Organization (WHO). Osteoporosis is defined as a BMD test result of more than 2.5 standard deviations (SD) below the mean for a young normal adult woman (T-score at or below -2.5). Osteopenia is defined as a BMD between 1 and 2.5 SD below the mean (T-score between -1 and -2.5). The NOF, USPSTF, and the AACE all discuss treatment based on this definition.^{7,8,9} Although these definitions are necessary to establish the prevalence of osteoporosis, they should not be used as the sole determinant of treatment decisions.

NEW OSTEOPOROSIS SCREENING GUIDELINES

As of September, 2002, there are three sets of osteoporosis screening guidelines. The professional organizations that released them include the NOF, USPSTF, and the AACE. A summary of the guidelines is in Table 4.

The three agencies recommend that all women age 65 years and older receive a BMD test and agree that a BMD is the best way to determine a patient's bone status, as well as accurately predict the risk for fractures in the short term. For more detail of the guidelines refer to the following websites:

- NOF- www.nof.org;
- USPSTF - www.preventiveservices.ahrq.gov
- AACE - www.aace.com/clin/guidelines/osteoporosis2001.pdf

Additionally, free copies of the NOF's *Physician's Guide to Prevention and Treatment of Osteoporosis*⁸ can be obtained from the Rhode Island Department of Health. Contact Nancy Sutton, MS, RD, LDN, phone: (401) 222-1383, or e-mail: nancys@doh.state.ri.us.

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