

OSTEOPOROSIS MANAGEMENT

Developed by



Providence | Health Plans



INTERHOSPITAL
PHYSICIANS
ASSOCIATION

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GUIDELINES FOR OSTEOPOROSIS MANAGEMENT

Developed by the Providence Health Plans, the InterHospital Physicians Association and the Oregon Osteoporosis Center

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OVERVIEW

In the past 5 years, we have made significant strides in our understanding of postmenopausal and age-related osteoporosis. The National Institutes of Health has defined osteoporosis as a disorder of impaired bone strength and increased fracture risk due to a combination of low bone density and poor bone quality, usually due to bone loss. We can identify patients at risk for fracture, and several therapies have been documented to reduce fracture risk in selected populations of patients.

In patient care, there is a need for efficient, measurable systems of disease management that help reconcile the conflict between socioeconomic responsibility and patient welfare. Clinical guidelines have become an important component of these systems. They address elements of care that are effective and reduce the variability in our approach to patient management. Based on this need, Providence Health Plans has developed Osteoporosis Guidelines for the management of this disease. Whenever possible, the guideline recommendations are based on the results of randomized, prospective, double-blind studies of well-defined populations. Studies with fracture reduction as the primary endpoint have been given the most consideration.

We recognize the process of developing and implementing guidelines can result in a narrowing and codification of clinical choices that are not relevant to every clinical situation. These Clinical Practice Guidelines are not intended to be rigid or restrictive. Instead, the Guidelines are meant to be a starting point for patient evaluation and treatment can be modified for individual patients when justified by the entire clinical picture. Specifically, the Guidelines recommend treatment for patients where fracture reduction has been demonstrated, but we can never state, with certainty, which patients should not be treated.

Michael McClung, MD

Director, Oregon Osteoporosis Center

GUIDELINES FOR OSTEOPOROSIS MANAGEMENT

IMPORTANT BASES OF THESE RECOMMENDATIONS:

1. General preventative measures are appropriate for all adults.
2. Reduction of fracture risk is the primary objective of treating patients with osteoporosis.
3. Patients with medical causes of bone loss (secondary osteoporosis) deserve individual evaluation. Specific guidelines for glucocorticoid-induced osteoporosis have been developed.
4. Bone mineral density testing is an important – but not the only – risk factor for fracture.
5. Having a previous vertebral fracture is a powerful risk factor for subsequent osteoporotic fractures. Older adults with non-traumatic, non-pathological vertebral fractures are candidates for pharmacological therapy, regardless of their bone density values.
6. Clinical risk factors, especially age and body size, are useful in identifying patients with low bone density.
7. The prevalence of osteoporosis in otherwise healthy postmenopausal women under the age of 60 is low.
8. The indications for bone density testing are designed to identify the patients for whom therapy is indicated.
9. Recommendations regarding the role of estrogen therapy pertain to its skeletal effects. Many other issues go into deciding whether estrogen therapy is indicated for an individual woman.
10. The effectiveness and clinical impact of therapy to reduce fractures depends upon the risk of the population treated. Our current treatments are most effectively used in the management of high-risk patients. Neither risk-benefit or cost-effectiveness considerations justify the use of bone-specific drugs in low-risk patients.
11. The availability of bone-forming agents makes preventing osteoporosis even less important.

SYNOPSIS OF OSTEOPOROSIS GUIDELINES

Patient Group

- All postmenopausal women
- Secondary causes of bone loss
- Previous non-traumatic spine fracture

Action

- General preventative measures
- Manage individually
- Begin osteoporosis therapy

- Indications for BMD?: NO

General preventative measures

If YES:

T-score -2.5 or lower

Begin osteoporosis therapy

T-score -2 to -2.5

With risk factors*, consider osteoporosis therapy

Without risk factors, no therapy; re-evaluate in 2-3 yrs

T-score -2 or higher

No therapy; re-evaluate in 3-5 yrs

(*Risk factors: fracture after menopause or age 50, family history of hip or spine fracture, postmenopausal women weighing less than 127 pounds)

IMPORTANT REFERENCES:

1. National Osteoporosis Foundation. Osteoporosis: Review of the evidence for prevention, treatment and cost-effective analysis. Osteoporos Int. 1998; Suppl 4.
2. Kanis JA. Diagnosis of osteoporosis and assessment of fracture risk. Lancet. 2002; 359:1929-36.
3. Delmas PD. Treatment of postmenopausal osteoporosis. Lancet. 2002; 359: 2018-26.

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OSTEOPOROSIS MANAGEMENT

RECOMMENDED GENERAL MEASURES

- Provide patient education tools about skeletal health
- Adequate intake of calcium and vitamin D (especially important for patients over age 65)
- Regular physical activity
- Avoid or stop smoking
- Injury prevention for frail elderly patients

NO KNOWN SECONDARY CAUSES OF BONE LOSS

KNOWN SECONDARY CAUSES OF BONE LOSS

- Drug induced
- Hyperparathyroidism
- Intestinal malabsorption
- Hypogonadism in men
- Premature menopause in women
- Multiple myeloma

History or evidence of non-traumatic vertebral fracture

INDICATIONS FOR BMD TESTING (MEN & WOMEN)

- X-ray evidence of low bone mass ♂♀
- Risk factors for fracture:
 - Fracture after menopause or age 50 ♂♀
 - Postmenopausal women not on estrogen with weight <127 lbs or family history of hip or spine fracture
- For all women over age of 65

NO

No indications for BMD testing

- No further work-up necessary
- Observe with recommended general measures

- Individually evaluate
- Manage underlying condition

See GIO Guideline
(pages 7 & 8)

YES

DO BMD TEST

Hip or spine BMD T-score -2.5 or lower

Hip or spine BMD T-score between -2 & -2.5

Hip or spine BMD T-score higher than -2

Begin osteoporosis therapy (pages 5 & 6)

Risk factors for fracture

No risk factors for fracture

Repeat BMD test in 2 years

Consider osteoporosis therapy (pages 5 & 6)

- No further work-up necessary
- Re-evaluate in 2-3 years

- No further work-up necessary
- Re-evaluate in 3-5 years

OSTEOPOROSIS MANAGEMENT

Clinical Utility of Bone Mineral Density Testing

Bone mineral density (BMD) is one of the important determinants of fracture risk in older adults. We can now measure BMD precisely in the hip and spine by dual-energy x-ray absorptiometry (DXA). This is the BMD test with which the diagnosis of osteoporosis is made, patients are identified as candidates for treatment, and the response to therapy is monitored.

Expressing BMD Results

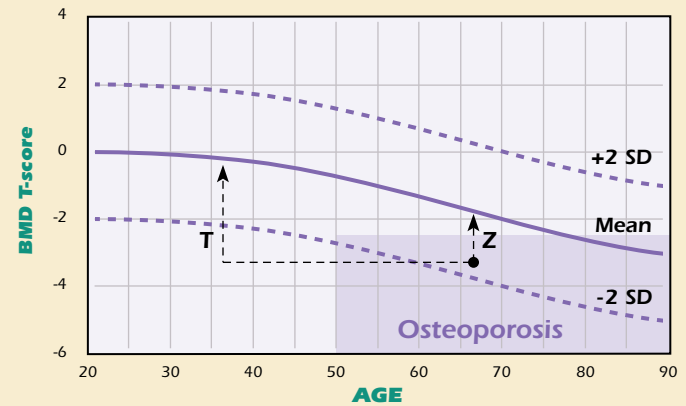
T-score: The number of standard deviations (SD) above (a positive value) or below (a negative value) the average value in young adults.

Z-score: The number of standard deviations from the average value in a person of same age and gender

Example: 67 year old woman:

T-score = -3.0; Z-score = -1.6

Interpretation: low normal for her age but consistent with osteoporosis.



Uses of Densitometry

Diagnosing Osteoporosis: The World Health Organization diagnostic criterion for postmenopausal women is a BMD T-score in the hip or spine by DXA of ≤ -2.5 or lower. Note that this criterion does not apply to premenopausal women or patients with secondary causes of bone loss, because the relationship is not known between BMD and fracture risk in those populations. The criterion for men has not been so clearly stated. Expert opinion suggests that a T-score of ≤ -2.5 is an appropriate diagnostic cut-off for men, too.

Predicting Fracture Risk: In older women, the risk of any osteoporotic fracture increases 1.5 fold (compared to age-matched controls) for every SD decrease in BMD. Hip fracture risk increases 2.6 times for each SD decrease in age-adjusted hip BMD. Fracture risk assessed by BMD is modified by other important risk factors for fracture including age, a personal or family history of fractures, and body size. A 70 year-old woman with a previous spine fracture and a BMD T-score of -1.5 is at much greater risk of fracture in the next 5 years than is a 55 year-old woman with a T-score of -3.0 and no previous fractures. Assessment of fracture risk must take all of these factors into account.

Identifying Patients to Treat: The effects of current treatments to reduce fracture risk on postmenopausal women seem to be similar across the spectrum of bone density. Most guidelines suggest therapy should be primarily targeted toward patients at high or moderate fracture risk. This includes women with previous vertebral fractures, BMD T-scores lower than -2.5 and women with low BMD who have other risk factors. The cost-effectiveness of treating low-risk patients is questionable.

Monitoring Response to Therapy: An increase in bone density with osteoporosis treatment can be observed in many patients by repeating the test after 2 years. However, the relationship between the amount of increase in BMD and fracture reduction is modest, at best. Not seeing an increase in bone density is not evidence of treatment failure and does not warrant a change in therapy. No further increase is usually seen after 2 years. More frequent testing may be indicated in patients on high-dose glucocorticoid therapy. Follow patients who are not receiving estrogen or osteoporosis treatments with repeat measurements every 2-5 years.

Bone Mineral Density Facts:

- ▶ BMD measurements do not capture important aspects of bone quality such as microarchitecture or fatigue damage.
- ▶ Not everyone with low BMD has osteoporosis. Other disorders like osteomalacia and osteogenesis imperfecta are also characterized by low BMD.
- ▶ Low BMD does not necessarily connote bone loss. BMD, at any point in time, is a function of how much bone was made during years of growth and how much has been lost since then.
- ▶ Osteopenia is a diagnostic category defined by the WHO as BMD T-score between -1 and -2.5. Although this category may have epidemiological significance, it does not have clinical relevance. The category overlaps the true range of normal BMD (T-scores -2 to +2), and no treatment guidelines suggest treating all women with osteopenia.
- ▶ DXA measurements of the hip and spine are the only tests that can be used for the diagnosis of osteoporosis. Devices to measure BMD in the peripheral skeleton (forearm, finger or heel) with DXA or ultrasound cannot be used to diagnose osteoporosis, identify which patients to treat or monitor response to therapy. If the T-score from a peripheral device is less than -2.5, refer the patient for DXA testing.

OSTEOPOROSIS MANAGEMENT

Options for Therapy

RECOMMENDED GENERAL MEASURES

► **Provide patient education tools about skeletal health**

Websites: Providence Health Plan (PHP): www.providence.org/eprise/main/Oregon/spiritofwomen/articles/whatis_ost.htm
 Oregon Osteoporosis Center (OOC): www.oregonosteoporosis.com/
 American Medical Association (AMA): www.ama-assn.org/cmeselec/part1/index.htm
 National Osteoporosis Foundation (NOF): www.nof.org

► **Adequate intake of calcium & vitamin D**

Calcium: Total daily elemental calcium intake of 1000-1500 mg divided in 2 or 3 doses
 Vitamin D: Women 65+ and men 75+: 400 IU daily (dose in daily multivitamin)
 Women over 75: 800 IU daily

► **Regular physical activity**

Weight-bearing (walking, hiking, jogging, stair climbing, tennis or dancing)
 30 minutes or more, 3-4 times per week

► **Avoid or stop smoking**

► **Injury prevention for frail elderly patients**

Evaluate environment for rugs, lamps, stools, etc.
 Evaluate adequate lighting to prevent falls
 Evaluate the use of CNS depressant medications which can contribute to falls

► **Hip protectors**

Designed to disperse the energy for falls into the soft tissue around the hip
 Some studies show they reduce hip fracture frequency by 50-60% in older fall-prone adults

OSTEOPOROSIS THERAPIES

(See reverse side of this document for more details on antiresorptive therapies)

► **Bisphosphonates:** The preferred treatment for most men and women known to have osteoporosis

Alendronate (Fosamax®) 70 mg weekly or 10 mg daily
 Risedronate (Actonel®) 35 mg weekly or 5 mg daily

► **Raloxifene:** (Evista®) 60 mg daily, an alternative for treating women with spinal osteoporosis

► **Calcitonin:** (Miacalcin Nasal Spray®) 200 IU daily, an alternative if use of other drugs not possible

► **Estrogen:** Long term use only to prevent bone loss is not advised

► **Teriparatide:** (Forteo®) 20 ugm daily by subcutaneous injection, for patients at high fracture risk

STRENGTH OF FRACTURE PROTECTION DATA

Not a comparison of effectiveness but of quality of data supporting fracture reduction

MEDICATION	SPINE FRACTURE	NON-SPINE FRACTURE	HIP FRACTURE	AVG. COST PER 30 DAYS*
Risedronate (Actonel®)	+++	++	++	\$61
Alendronate (Fosamax®)	+++	++	++	\$65
Raloxifene (Evista®)	+++	0	0	\$64
Calcitonin (Miacalcin®)	+	0	0	\$82
Estrogen	+	+	+	\$8-30
Teriparatide (Forteo®)	+++	++	0	\$500
KEY: +++ Strong Evidence ++ Very Good Evidence + Some Evidence +/- Uncertain Evidence 0 No Evidence		*Comparative Cost based on average cost/strength/quantity per Rx per month. Pharmacy prices may vary.		

OSTEOPOROSIS MANAGEMENT

Management of Postmenopausal and Male Osteoporosis

OSTEOPOROSIS THERAPIES

Estrogen:

Indication: Prevention of bone loss in postmenopausal women.

Effects: Increased spine density by 6-8% after 3 years. Reduced vertebral, hip and other fragility fractures by 34% after 5 years in a large cohort of postmenopausal women (average age 63) at low fracture risk.

Side Effects: Increased risk of breast cancer, stroke, venous thrombosis, gall bladder disease; heart disease in first year of treatment.

Contraindications: Breast cancer, unexplained vaginal bleeding, history of venous thrombotic events or previous heart attack.

Other Considerations: Not approved for treating women known to have osteoporosis. Controls menopausal symptoms such as hot flashes. Long-term therapy not recommended for prevention of heart disease or bone loss.

Bisphosphonates: **Alendronate** (Fosamax®) 70 mg once weekly or 10 mg daily OR **Risedronate** (Actonel®) 35 mg once weekly or 5 mg daily. The preferred treatment for most men and women with osteoporosis.

Indication: Treatment and prevention of postmenopausal osteoporosis (both agents) and treating male osteoporosis (alendronate).

Effects: Increased bone density in the spine by 5-8% and at the hip by 3-5% after 3 years. Reduced incidence of spine fractures by 40-70% and non-spine fractures (20-40%), including hip fractures (40-60%) in women with osteoporosis. Reduced incidence of spine fractures in men with low BMD (alendronate).

Side Effects: Bisphosphonates have been associated with upper esophageal symptoms such as esophagitis, esophageal ulcers or dysphagia in some patients. This effect is minimized by proper dosing.

Contraindications: Hypocalcemia; esophageal stricture or impaired esophageal motility (alendronate); allergy to bisphosphonates; inability to stand or sit for at least 30 minutes, pregnancy, breast feeding.

Other Considerations: Tablets should be taken on an empty stomach after an overnight fast with plain water (6-8 oz.) while sitting in an upright position. Patients should not eat or lie down for at least 30 minutes. Calcium and vitamin D should be prescribed with bisphosphonates but administered separately, at least 2 hours after the dose, to prevent inhibited absorption of the drug.

Raloxifene: Evista® (60 mg daily): an alternative for treating women with spinal osteoporosis.

Indication: Treatment and prevention of postmenopausal osteoporosis.

Effects: Increased spine and hip bone density by 2-3% after 3 years. Reduced incidence of vertebral fractures (30-50%) in women with postmenopausal osteoporosis. No effect on non-vertebral fractures has been observed. Too few hip fractures occurred to evaluate treatment effect.

Side Effects: Increased hot flashes, leg cramps and venous thrombotic events.

Contraindications: History of venous thrombotic events; allergy to raloxifene, pregnancy.

Other Considerations: Lowers LDL without affecting HDL or triglyceride levels. Effects on cardiovascular events have not been assessed. May reduce incidence or delay diagnosis of breast cancer in older postmenopausal women, although use in women known to have breast cancer has not been evaluated.

Calcitonin: Miacalcin® Nasal Spray (200 IU daily): an alternative if use of other drugs not possible.

Indication: Treating postmenopausal women with osteoporosis.

Effects: Very small effect on bone density. Reduced incidence of vertebral fractures (36%) in women with pre-existing vertebral fractures. No effect on non-vertebral fractures has been observed.

Side Effects: Nasal stuffiness.

Contraindications: Hypocalcemia, allergy to calcitonin, pregnancy.

Teriparatide: Forteo® (20 ugm daily by subcutaneous injection): for treatment of patients at high fracture risk.

Indication: Treating postmenopausal women with osteoporosis and men with low bone density who are at high fracture risk. Examples would include patients with multiple vertebral fractures or BMD T-scores of -3.0 or lower.

Effects: Increased bone density in the spine by 9.7% and in the total hip by 2.6% after 21 months. Reduced incidence of vertebral fractures by 65% and non-vertebral fractures by 53% in women with pre-existing vertebral fractures. Too few hip fractures occurred to evaluate treatment effect.

Side Effects: Dizziness, leg cramps, transient hypercalcemia, increased serum uric acid.

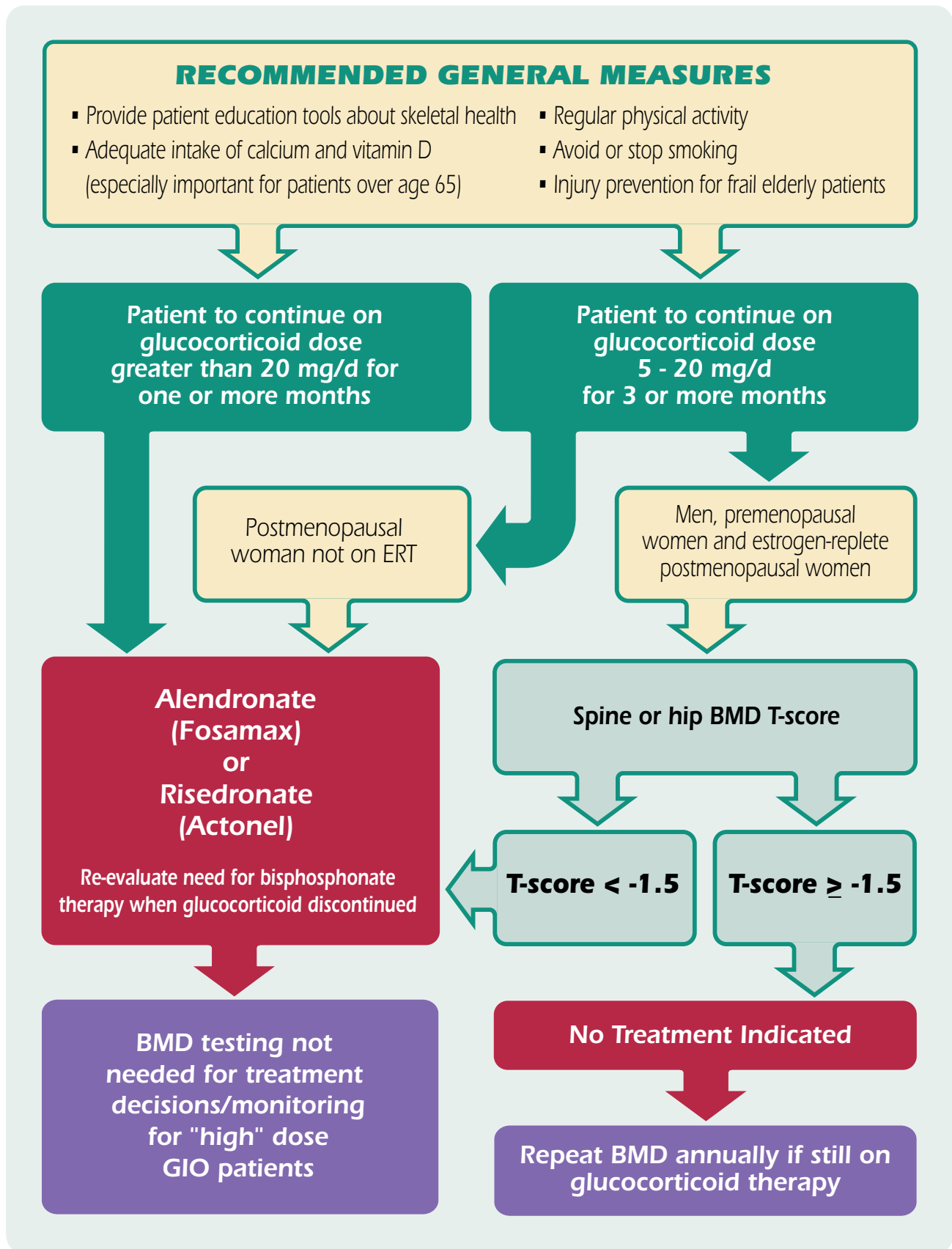
Contraindications: Other bone diseases such as Paget's disease, bone malignancies (myeloma) or other cancers metastatic to bone; history of high-dose skeletal irradiation; hypercalcemia or hyperparathyroidism; children or young growing adults; pregnancy and breast feeding.

Other Considerations: Use beyond 24 months not recommended. Teriparatide treatment in rats caused osteosarcoma.

Combination Therapy:

The combined use of bisphosphonates and estrogen or raloxifene results in a small (1-2%) additional increment in BMD values. Whether this translates into added fracture protection is unclear. There is theoretical concern about possible over-suppression of bone metabolism when two potent antiresorptive agents are combined. Using two agents results in added expense and potential side effects without clear benefit. For these reasons, the use of bisphosphonates in combination with estrogen or raloxifene should be reserved for those few women in whom single agent therapy has definitely been shown to be ineffective. There is rarely an indication for use of bisphosphonates or calcitonin (and never for raloxifene) in premenopausal women. Combined use of teriparatide and antiremodeling drugs has not been adequately evaluated. Fracture prevention with teriparatide has been documented with monotherapy. It is currently recommended to use teriparatide alone, perhaps followed by an anti-remodeling drug.

GLUCOCORTICOID-INDUCED OSTEOPOROSIS MANAGEMENT



GLUCOCORTICOID-INDUCED OSTEOPOROSIS MANAGEMENT

Refers to Adults Receiving Glucocorticoids (18 years and older)*

▶ Attempt to minimize dose of glucocorticoids

▶ Adequate intake of calcium & vitamin D

Calcium: Total daily elemental calcium intake 1000-1500 mg divided in 2 or 3 doses.

Vitamin D: 400 IU daily (dose in daily multivitamin). Unless true intestinal malabsorption or renal failure exist, there is no indication for larger doses or the use of active vitamin D metabolites such as calcitriol.

▶ Antiresorptive therapy

Bisphosphonates: **Alendronate** (Fosamax®) OR **Risedronate** (Actonel®):

These are the only drugs currently approved for management of GIO.

Effects: Therapy preserves or increases BMD and reduces rate of vertebral fractures.

Side Effects: Bisphosphonates have been associated with upper esophageal symptoms such as esophagitis, esophageal ulcers or dysphagia in some patients. This effect is minimized by proper dosing.

Contraindications:

- Hypocalcemia
- Allergy to bisphosphonates
- Inability to stand or sit for at least 30 minutes
- Esophageal stricture or impaired esophageal motility (alendronate)

Other Considerations: Tablets should be taken on an empty stomach after an overnight fast, with plain water (6-8 oz.) while sitting in an upright position. Patients should not eat or lie down for at least 30 minutes. Calcium and vitamin D should be prescribed with bisphosphonates but administered separately, at least 2 hours after the dose, to prevent inhibited absorption of the drug.

Indications for bisphosphonate therapy:

- Men and women receiving prednisone 20 mg daily or more (or equivalent glucocorticoid dose) for longer than 1 month
- Estrogen-deficient women on doses of 5 to 20 mg daily for longer than 1 month
- Postmenopausal women receiving estrogen, men and premenopausal women on doses of 5-20 mg daily for longer than 3 months who have had a vertebral fracture or whose BMD T-scores are -1.5 or lower

Comments:

- ▶ Bone loss with glucocorticoid (GC) use occurs most quickly in the first 6 months of therapy.
- ▶ Up to 16% of adults beginning or receiving GC experience vertebral fractures each year.
- ▶ While all patients receiving GC are at risk for bone loss, the risk of fracture is greatest in estrogen-deficient women. Premenopausal women and estrogen-replete postmenopausal women are at much lower risk than are postmenopausal women not receiving estrogen therapy. Fracture risk increases within the first 3 months of GC use.
- ▶ Bisphosphonate therapy reduces the incidence of vertebral fractures by as much as 70% within the first year of treatment.
- ▶ Risedronate and alendronate are the only drugs approved by the FDA for the management of patients receiving GC therapy.
- ▶ The risk of fracture associated with GC use wanes very quickly when steroid therapy is discontinued.

* Guidelines for minimizing the skeletal effects of glucocorticoid (GC) therapy in children have not been developed. While no untoward effects of bisphosphonate therapy have been observed in children, there is little experience with the use of these agents in individuals younger than 18.

Questions for Men & Women

- Have you experienced a fracture of the wrist, hip, arm, ribs or pelvis since the age of 50?
- Have you ever had an x-ray that indicates low bone mass?
- Are you on thyroid or anti-seizure medication?
- Are you on steroid therapy (such as cortisone or prednisone)?
- Are you immobilized or suffer from hyperparathyroidism, malabsorption or hypogonadism (men only)?

Questions for Women

- Are you 65 or older?
- Are you postmenopausal, younger than 65, and:
 - weigh less than 127 lbs?
 - have lost more than 2 inches in height?
 - currently smoke?
 - have parents, brothers or sisters who have had a hip or spine fracture?

If you have answered yes to any of the questions above, you may be at risk for osteoporosis. Discuss these risk factors with your health care professional.

General Measures to Maintain Healthy Bones!

Adequate Calcium and Vitamin D Intake: Calcium is an important nutrient for building bones in children and adolescents and for preventing bone loss in adults, especially in older men and women. Calcium is available in our diet (especially dairy products) or through calcium supplements. Vitamin D is necessary for optimal calcium absorption from the intestine.

Exercise: Weight-bearing exercise helps build larger, stronger bones in children. In adults, regular exercise such as walking, dancing, lifting weights and even swimming can slow the rate of bone loss and can increase muscle strength and decrease the likelihood of falls in older adults.

Hip Protectors: These undergarments include a protective pad sewn into the hip region. If a fall occurs, the energy of the fall is defused away from the hip. This reduces the force of the fall on the hip and prevents an injury or fracture. Studies have shown that with regular and consistent wearing of the hip protectors, hip fractures are largely preventable.

Avoid or Stop Smoking: Smoking increases the rate of bone loss, especially in postmenopausal women, and is associated with increased risk of fracture. The risk of fracture goes down when smoking is stopped.

Recommended Total Daily Calcium and Vitamin D Intake

	Calcium	Vitamin D
Adults, age 19-50	1000 mg	200 IU
Adults, age 51-70	1200 mg	400 IU
Adults, age 71 and older	1200 mg	600 IU

Estimating Your Daily Calcium Intake

Daily Sources of Calcium	Calcium Intake
Daily dairy-free diet	300 mg
Dairy products* (300 mg x ____ servings)	_____ mg
Calcium-fortified juices (300 mg x ____ servings)	_____ mg
Calcium supplements**	_____ mg
	+
TOTAL DAILY CALCIUM INTAKE	_____ mg

* Each dairy product serving (1 glass of milk, slice of cheese or cup of yogurt) contains about 300 mg

** If you take more than 600 mg of calcium supplement per day, take the tablets in 2 or 3 doses.

Frequently Asked Questions About Calcium



- ▶ **Which supplement is best absorbed?** The main calcium supplements are the carbonate, citrate or phosphate salts of calcium. Calcium citrate is more predictably absorbed in older adults who lack stomach acid when the pills are taken on an empty stomach. All 3 calcium preparations are equally well absorbed when taken with food. It is recommended that calcium carbonate be used first because it is less expensive and more efficient (fewer tablets have to be taken to get the same dose). If intestinal cramping or gas occurs, then switch to another form of calcium carbonate (Tums, Viactiv chewables), calcium citrate (Citrical) or tricalcium phosphate (Posture). Regardless of the supplement, no more than 600 mg of calcium should be taken at any one time.
- ▶ **How can I be sure that I am taking the right dose of calcium?** Knowing the actual content of a calcium supplement may be difficult. Some products state plainly how many mg of calcium are in a tablet. Others state that taking 2 or 3 tablets daily will provide 1000 or 1200 mg of calcium. The amount of calcium in each tablet then needs to be calculated. Reading supplement labels can be confusing. Here are some guidelines:
 - Look for the percent (%) daily value or RDA (recommended daily allowance)
 - Whatever the percent is, add a "0" to find out how much actual calcium (elemental calcium) is in the serving (For example, if the "nutrition facts" on the label reads 50 percent, there is 500 mg of calcium per serving. Sometimes a serving is more than 1 tablet.)
- ▶ **Do I need to take calcium tablets containing magnesium?** While very severe magnesium (Mg) deficiency interferes with the control of blood levels of calcium, mild to moderate deficiency of Mg do not affect calcium absorption or assimilation. The results of the clinical studies with calcium have not included Mg, and when Mg is added, there is no improvement in the outcome. Magnesium is available in a well-balanced diet or in a multivitamin with minerals.
- ▶ **Will taking calcium increase my risk of having kidney stones?** No, the intakes recommended here are in the range that our body can easily manage without being overwhelmed by too much calcium to eliminate in the urine. In fact, adult men and women with higher calcium intakes have fewer kidney stones than do people on a low calcium diet. If you or a close relative have had a kidney stone in the past, or a history of high blood calcium levels, discuss your calcium intake with your physician.
- ▶ **Do I have to take a calcium tablet that contains vitamin D?** Although vitamin D is necessary for calcium assimilation, calcium and vitamin D do not have to be taken at the same time. The vitamin D has to be absorbed and activated before it stimulates calcium absorption. In other words, today's vitamin D supplement will absorb tomorrow's calcium. So, the two nutrients can be taken together or at different times of the day.
- ▶ **What interactions with other drugs does calcium have?** Calcium can inhibit the absorption of both thyroid hormone and iron supplements. Simply take them at different times of the day to avoid the interaction. The cholesterol-lowering drugs cholestyramine or colestipol interfere with calcium and vitamin D absorption. Take the supplements at least 30 minutes before or 2 hours after the cholesterol resins. Calcium binds (sticks) tightly to osteoporosis drugs like alendronate (Fosamax) or risedronate (Actonel) and inhibits binding and action of these osteoporosis drugs. Take the drugs before breakfast, on an empty stomach and wait at least 30 minutes before eating. Take your calcium supplements at the end of breakfast or at another meal.
- ▶ **Why do I need to consider estrogen or other drugs to prevent bone loss after menopause? Aren't I protected from losing bone if I eat enough calcium, exercise regularly and avoid habits like smoking?** General measures like calcium, exercise and good habits are important for optimal bone health. However, the bone loss that occurs in the first 3 to 5 years after menopause in women is due to estrogen deficiency, not calcium deficiency. As a result, the general strategies do not completely prevent the bone loss that occurs in the first few years after menopause. For women with other risk factors for osteoporosis, and especially those who go through menopause early, bone density testing may be considered to determine whether treatment other than calcium, vitamin D and exercise is appropriate.