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Osteoporosis: An update for pharmacy technicians

by Michael Boivin, BScPhm



Learning objectives

Upon successful completion of this lesson, you will be better able to do the following:

1. Discuss the frequency and consequences of osteoporosis
2. Help identify patients at risk of osteoporosis and fractures
3. Review the role of bisphosphonates in the management of osteoporosis
4. Discuss the role of the pharmacy technician in managing patients with osteoporosis

Case study

Mrs. Jones approaches you for several refills. When you are reviewing her profile, you notice that she has not had her prescription for risedronate 150 mg refilled in close to 8 months. You mention to Mrs. Jones that you would like to keep her file current and was wondering if her physician discontinued the risedronate. She says that she stopped taking

it; she has heard it has many side effects and that high doses of calcium and vitamin D are more effective.

You tell her that you don't feel the supplements work as effectively as the risedronate at preventing fractures. You ask if she has about 30 minutes so the pharmacist can review her medications and discuss the proper management of osteoporosis. She

TABLE 1 - Indications for measuring bone mineral density⁽⁴⁾

Older adults (age ≥ 50 years)	Younger adults (age < 50 years)
<ul style="list-style-type: none"> • Age ≥ 65 years (both women and men) • Menopausal women, or men 50–64 years, with risk factors for fracture: <ul style="list-style-type: none"> - Fragility fracture after 40 years of age - Use of prednisone > 7.5 mg daily for at least 3 months in the past year - Use of high-risk medications such as aromatase inhibitors (e.g., anastrozole [Arimidex], letrozole [Femara], exemestane [Aromasin]) - Parent with a hip fracture - Spine fracture - Current smoker - High alcohol intake - Low body weight (< 60 kg) or major weight loss (> 10% of body weight after age 25 years) - Rheumatoid arthritis 	<ul style="list-style-type: none"> • Fragility fracture • Use of prednisone > 7.5 mg daily for at least 3 months in the past year • Use of high-risk medications such as aromatase inhibitors (e.g., anastrozole [Arimidex], letrozole [Femara], exemestane [Aromasin]) • Premature menopause (< 45 years) or decreased functioning of testes or ovaries • Malabsorption syndrome (condition in which the intestine doesn't absorb certain nutrients) • Primary hyperparathyroidism (overactivity of the pituitary gland)

agrees, so you flag her prescription for a medication review and approach the pharmacist to discuss her reasons for discontinuing her risedronate.

What is osteoporosis?

Osteoporosis is a condition characterized by loss of bone mass and a deterioration of bone tissue.⁽¹⁾ This leads to fragile bones and a higher risk of bone fracture.⁽¹⁾ Fractures from osteoporosis are more common than heart attack, stroke and breast cancer combined.⁽²⁾

Bone modelling

When thinking about the human skeleton, many people visualize bones as inactive or dead tissue; however, bones are highly dynamic and living. They are constantly being remodelled to maintain their strength and repair any damage, and act as the body's calcium reservoir.

When we are younger, the body continues to remove older bone and replace it with new and stronger bone.⁽³⁾ Our bones continue to gain strength until the age of 18–25 years, when we hit a peak bone mass.⁽³⁾ This peak bone mass is important because patients with a higher peak have a higher starting point when their bones become weaker later in life.⁽¹⁾ The peak bone mass of an adult is influenced by the following⁽³⁾:

- Genetic factors (e.g., family history)
- Nutrition
- Physical activity
- Certain hormones
- Overall health when the bones are growing

Both men and women in their mid-30s start to experience increased bone loss, with a decrease in the amount of bone being replaced.⁽³⁾ This leads to a deterioration in bone mass and strength. Bone loss occurs without symptoms; individuals don't realize that their bones are becoming weaker as they become older. Osteoporosis occurs when the person's bone mass has decreased so significantly they are at a higher risk of a fracture.⁽¹⁾

Osteoporosis fact

Many people confuse osteoarthritis with osteoporosis. Osteoporosis is a bone disorder that is usually symptom-free until a fracture occurs. Osteoarthritis, the most common cause of arthritis, is a joint disorder that causes joint pain, stiffness and reduced ability to move. Osteoporosis Canada discusses the differences at www.osteoporosis.ca/osteoporosis-and-you/osteoporosis-and-osteoarthritis.

Fragility fractures

When people discuss osteoporosis, they might mention fragility fractures. A bone fracture in a younger person tends to be the result of major trauma, such as an automobile or snowboarding accident. In people with osteoporosis, a fracture can occur after minor trauma, such as the following⁽¹⁾:

- Falling from standing (e.g., while walking)
- Falling off a chair
- Falling off a bed or reclining chair
- Falling after missing 1 to 3 steps in a staircase
- Coughing

At least 1 in 3 women and 1 in 5 men will suffer from a fracture caused by osteoporosis at some point in their lives.⁽²⁾ The most common areas of osteoporosis-related fractures are the wrist, spine, shoulder and hip.⁽²⁾ These fractures can cause disfigurement, lowered self-esteem, reduction or loss of mobility and decreased independence.⁽²⁾ Approximately 38% of women and 37% of men who suffer a hip fracture will die within the following year.⁽²⁾ Many survivors will no longer be able to live independently and will have to live in a long-term care facility.⁽²⁾

Technician tip

More than 80% of all fractures in patients older than 50 years are caused by osteoporosis.⁽²⁾ If you hear older patients mention that they have broken a bone recently, consider asking them whether anyone has counselled them on osteoporosis. If not, consider flagging them for a pharmacist consultation.

Screening for osteoporosis

In 2010, Osteoporosis Canada published clinical practice guidelines for the management of osteoporosis. These guidelines are available free of charge from the Osteoporosis Canada website (www.osteoporosis.ca/health-care-professionals/guidelines).

The guidelines recommend that all people over the age of 50 years be assessed for risk of osteoporosis and fractures.⁽⁴⁾ With some people, this will simply involve measuring their height and asking if they have fallen in the past year.⁽⁴⁾ Checking height every year is very important, because a decrease in height is commonly caused by osteoporosis-related fractures to the spine.⁽¹⁾

Some patients who are at higher risk of osteoporosis and fractures are advised to have their bone mineral density checked through a specialized x-ray device called DXA (dual energy x-ray absorptiometry).⁽³⁾ Patients who should get this test are listed in Table 1.

Technician tip

All people 65 years of age and older should have a DXA scan.⁽⁴⁾ Consider asking all of your senior patients if they have had a bone mineral density test to

TABLE 2 - Recommended management of patients by level of fracture risk⁽⁴⁾

High risk (> 20% 10-year fracture risk, prior fragility fracture of hip or spine, > 1 fragility fracture)	Moderate risk (10%–20% 10-year fracture risk)	Low risk (< 10% 10-year fracture risk)
<ul style="list-style-type: none"> All patients should be counselled on the importance of exercise, diet, smoking cessation and fall prevention All patients should be offered medication to reduce fracture risk 	<ul style="list-style-type: none"> All patients should be counselled on the importance of exercise, diet, smoking cessation and fall prevention Some patients at higher risk should be considered for medication while others should simply be monitored closely Re-check bone density in 1–3 years 	<ul style="list-style-type: none"> All patients should be counselled on the importance of exercise, diet, smoking cessation and fall prevention Medication is NOT usually required Re-check bone density in 5 years

determine bone strength. If they haven't, consider flagging the patient for a pharmacist's consultation to discuss the patient's osteoporosis risk.

Technician tip

Men and women who continue to smoke later in life are at a higher risk of not only lung and heart conditions, but also osteoporosis. Many smokers do not realize how smoking can affect their bones and, in turn, their eventual mobility and ability to live independently. Consider asking all patients if they are smokers, marking it in the patient's file and flagging the patient for a smoking cessation consultation.

Ten-year fracture risk

The current Canadian osteoporosis guidelines recommend that healthcare professionals determine a patient's 10-year risk of a major osteoporosis-related fracture (i.e., fracture of the hip, spine, forearm and the upper portion of the humerus).⁽⁴⁾ This is calculated using the CAROC or FRAX tools. Using the results from bone mineral density and various risk factors, a healthcare professional can determine if the patient is at⁽⁴⁾

- low risk (10-year risk of fracture < 10%);
- moderate risk (10-year risk of fracture 10%–20%); or
- high risk (10-year risk of fracture > 20%; prior fragility fracture of hip or spine; > 1 fragility fracture).

Determining the patient's risk score helps to ascertain whether the patient should receive medications for osteoporosis or be managed with changes to diet and exercise levels and counselled in fall prevention.⁽⁴⁾ The recommended management of each risk category is reviewed in Table 2.

Technician tip

Fractures are the most serious complication of osteoporosis. A patient's fracture risk, not just bone density, is important in determining who should receive medications. If patients ask about a medication for osteoporosis, consider mentioning that the medication is used to reduce the risk of fracture in moderate- to high-risk patients and the pharmacist can help determine their risk levels.

Goals of treatment

In a patient with osteoporosis, the goals of therapy are as follows⁽⁵⁾:

- Prevent fractures, disability and loss of independence
- Preserve or enhance bone mass

Nonpharmacologic recommendations

Changes in diet and exercise are recommended to prevent osteoporosis and reduce risk of fracture.⁽⁴⁾ Some nonpharmacologic recommendations include calcium and vitamin D supplementation, weight-bearing exercise and fall prevention.

Calcium and vitamin D intake

Regular calcium intake is needed to obtain a high peak bone mass and maintain bone health.⁽³⁾ The skeleton contains 99% of the body's calcium stores; when there is not enough provided through diet, bone tissue breaks down to supply consistent calcium to the body.⁽³⁾ Table 3 reviews the calcium and vitamin D intake recommendations from the osteoporosis guidelines.

There has been some controversy over the benefit of calcium supplementation for reducing fractures and the potential adverse effects of high-dose supplementation.⁽⁴⁾ Current guidelines

recommend a maximum daily calcium intake of 1200 mg, as there is no evidence that higher intakes increase bone strength and too much calcium may increase risk of kidney stones, cardiovascular disease or stroke.⁽³⁾ The average calcium intake from dietary sources for adults aged 50 years and older is 600–700 mg per day.⁽³⁾ Ideally a person should try to increase his or her calcium intake through dietary sources rather than using supplements (calcium content of foods can be found at www.osteoporosis.ca/osteoporosis-and-you/nutrition/calcium-requirements).

Not all calcium supplements are the same. The most common sources are calcium carbonate and calcium citrate.

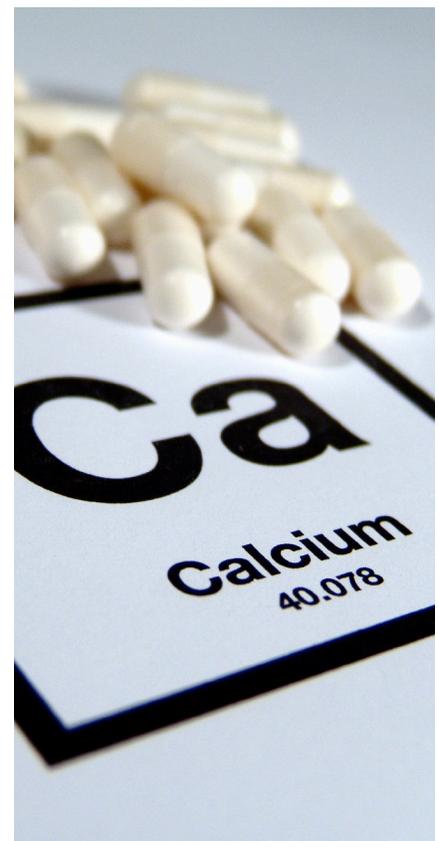


TABLE 3 - Recommended daily calcium and vitamin D intakes⁽⁴⁾

Age	Calcium	Vitamin D
Adults 19–50 years	1000 mg	400–1000 IU
Adults > 50 years	1200 mg	800–1000 IU*

*Doses up to 2000 IU per day are safe and do not require monitoring

Calcium carbonate contains 40% elemental calcium whereas calcium citrate contains 21%.⁽⁶⁾ This would mean the patient would have to take almost double the amount of calcium citrate to reach the same amount of calcium in calcium carbonate. The primary advantage of calcium citrate is that it can be taken with or without food; calcium carbonate, on the other hand, requires food for optimal absorption.⁽⁶⁾ All calcium supplements have a similar tolerability.

Technician tip

Before recommending a calcium supplement, it is important to check the amount of calcium the patient is consuming through his or her diet. Patients eating numerous dairy products may require very little, if any, calcium supplementation to reach their recommended total. Osteoporosis Canada has a calcium calculator (<http://www.osteoporosis.ca/osteoporosis-and-you/nutrition/calculate-my-calcium>) to help patients determine the amount of calcium in their diet.

Vitamin D is required for calcium absorption. Very few foods contain vitamin D; it is synthesized naturally when the skin comes into contact with ultraviolet (UV) radiation from the sun. However, because UV exposure increases the risk of skin cancer, the use of sunscreen has also increased while exposure to direct sunlight has decreased, impeding vitamin D production. Because of this fact and our inability to make sufficient vitamin D in the winter, Osteoporosis Canada recommends vitamin D supplementation for all Canadian adults year round (Table 3).⁽⁷⁾

Technician tip

Considering asking patients if they are taking a vitamin D supplement to help reduce their risk of fractures. Most patients could benefit from a daily vitamin D supplement.

Exercise

Regular exercise improves the quality of life of patients living with osteoporosis, improves physical function and reduces pain.⁽⁴⁾ It can also improve agility, strength, posture and balance, which may reduce the risk of falls.⁽³⁾ Exercise has been shown to modestly increase bone density.⁽³⁾

A patient's exercise program should include weight-bearing exercise (e.g., walking, jogging, Tai-Chi, stair climbing, dancing and tennis) and muscle-strengthening exercises (e.g., weight training and other resistance exercises).⁽³⁾ The Canadian Physical and Sedentary Behaviour Guidelines Handbook (www.csep.ca/english/view.asp?x=804) has some great tips to keep people active and healthy.

Fall prevention

Falling is a major cause of fractures associated with osteoporosis. Although there is limited evidence that fall prevention strategies can reduce fractures,⁽⁴⁾ they can at least improve the patient's confidence. Improving lighting in the home, as well as removing loose throw rugs and other obstacles or clutter in hallways and corridors can reduce the risk of falls.⁽³⁾

Technician tip

Many pharmacies sell assistive devices (e.g., grab bars for the bathroom, seats for the shower or bath) that can help to keep the bathroom safe for older patients with reduced mobility. Technicians familiar with these products can play an important role in helping to choose the best home healthcare products for an individual client.

Pharmacologic treatment

All patients with a high 10-year fracture risk and many of those with a moderate fracture risk are candidates for medications that lower the risk of fractures. Several classes of medications are used to improve bone strength and reduce fracture risk. The most

common classes are

- bisphosphonates (e.g., alendronate, risedronate, zoledronic acid, etidronate);
- hormone-replacement therapy (e.g., estrogen);
- RANKL inhibitors (e.g., denosumab);
- selective estrogen receptor modulators (SERMs) (e.g., raloxifene); and
- human parathyroid hormone (e.g., teriparatide).

Bisphosphonates are the most frequently used class of agents. Therefore, this lesson reviews them in greater detail. For readers interested in learning more about the other treatments, Osteoporosis Canada reviews the other drug treatments for osteoporosis at www.osteoporosis.ca/osteoporosis-and-you/drug-treatments.

Bisphosphonates

Bisphosphonates are mainstays in the management of osteoporosis.⁽⁵⁾ These agents block the cells that break down bone (osteoclasts).⁽⁶⁾ They have been shown to increase bone density and reduce the risk of fractures from osteoporosis. The agents most commonly used are alendronate, risedronate, zoledronic acid and etidronate.

Etidronate is prescribed as a 90-day pack containing 14 daily tablets of etidronate 400 mg followed by 76 days of calcium carbonate. Although this agent was used heavily in the past, it has largely been replaced by more potent bisphosphonate agents.⁽¹⁾ Etidronate increases bone density and reduces the risk of vertebral fractures.⁽¹⁾ There is no evidence that it reduces the risk of nonvertebral fractures (i.e., fractures of the hip or wrist).⁽¹⁾

Alendronate and risedronate are commonly used to treat osteoporosis and reduce the risk of fractures. Unlike etidronate, these agents not only increase bone density and reduce the risk of hip fractures but also reduce the risk of all other osteoporosis-related fractures.⁽⁴⁾ These two drugs are available in a wide range of dosage forms, allowing for daily, weekly, twice-monthly and monthly dosing.

Zoledronic acid is a bisphosphonate given by intravenous infusion once yearly. The infusion has been shown to increase bone density and lower the risk of all osteoporosis-related fractures.⁽⁴⁾ Some patients prefer this format, as it is a 15-minute infusion once a year (compared with other

TABLE 4 - Administration instructions for bisphosphonates^(3, 5)

Etidronate 400 mg once daily for 14 days followed by 76 days of calcium 500 mg/d	<ul style="list-style-type: none"> Etidronate must be taken on an empty stomach (at least two hours before or after eating) with a full glass of water To help with adherence, many patients take it at bedtime Calcium included in the pack should be taken with food
Alendronate 10 mg tablet is taken once daily and the 70 mg tablet is taken once weekly	<ul style="list-style-type: none"> Must be taken first thing in the morning with 200–250 mL of plain water (no other liquid) Tablets must be swallowed whole After taking the medication, the patient must wait at least 30 minutes before eating, drinking or taking any other medication Patients should remain upright (standing or sitting) during this time, to minimize the risk of esophageal irritation Alendronate is also available in a combination tablet that contains vitamin D
Risedronate 5 mg tablet is taken once daily, the 35 mg tablet is taken once weekly, the 75 mg tablet is taken on two consecutive days per month, the 150 mg tablet is taken once monthly	<ul style="list-style-type: none"> Same administration instructions as alendronate, but can be taken with a smaller volume of water (at least 120 mL) Also available in a once-weekly format (35 mg) with 6 days of calcium carbonate The only exception is risedronate 35 mg DR (delayed release). This product is designed to be taken once weekly with breakfast and a glass of water. The patient should not lie down for 30 minutes after taking it.
Zoledronic acid 5 mg injection once yearly	<ul style="list-style-type: none"> Administered by an intravenous infusion over at least 15 minutes Patients may pre-treat with acetaminophen to lower the risk of muscle pain, joint pain, headache and fever. These symptoms tend to be less common after the initial injection. The patient should drink plenty of water before and after administration

bisphosphonates, which are usually administered orally once a month at minimum). As well, zoledronic acid does not tend to cause the gastrointestinal-related side effects typical of oral bisphosphonates.⁽⁵⁾

Administration

Proper administration of bisphosphonates is very important for optimal absorption (efficacy) and safety. Administration instructions for each bisphosphonate are reviewed in Table 4.

Technician tip

When patients come in for refills of bisphosphonates consider asking how they are taking their medications. If they are not taking them as outlined in table 4, please refer them to the pharmacist for more detailed instruction.

Side effects of bisphosphonates

The most common adverse effects of bisphosphonates are gastrointestinal (gut and esophagus) related. The oral agents are well tolerated and adverse effects such as irritation of the esophagus can be minimized if the patient takes the medication exactly as

recommended in Table 4.

Intravenous zoledronic acid is linked to flu-like symptoms in up to 10% of patients after the first dose.⁽⁴⁾ This tends to occur less often with subsequent doses.

There have been reported of cases of osteonecrosis of the jaw (ONJ).⁽³⁾ ONJ is a condition in which there is a decrease in blood flow to the jaw bone, causing death of the tissue.⁽³⁾ It is very uncommon (< 1 case

per 10,000 patient-years) in patients taking osteoporosis doses of bisphosphonates. It is more common in the following situations: cancer patients receiving much higher doses intravenously; patients taking corticosteroids (e.g., prednisone); patients with diabetes; those with poor dental hygiene; or those undergoing invasive dental procedures such as tooth extractions or implants.⁽³⁾ Patients with ONJ will normally complain of pain, which is often related to infection, soft tissue swelling, drainage and exposed bone.⁽⁹⁾ Good oral hygiene and dental care should be promoted to help reduce the risk of ONJ. Some patients have discontinued their bisphosphonate therapy because they fear this adverse effect, and should be reassured that it occurs very rarely.

Atypical femoral shaft fractures are another rare adverse effect.⁽⁴⁾ The femur is the large bone in the upper part of the leg. This adverse effect is extremely rare, but is more common in patients taking long-term bisphosphonate therapy (> 5 years).⁽⁴⁾ Some patients have thigh or groin pain before the femur fractures.⁽⁴⁾ Patients on long-term bisphosphonate therapy should be advised to report any thigh or groin pain if it occurs.

Bisphosphonates are generally very well tolerated. Patients are often worried about the potential rare adverse effects and do not consider fracture risk and subsequent complications, which can be quite serious. The osteoporosis guidelines state that, for patients at a high 10-year fracture risk, the benefits of these medications far outweigh the potential risks.⁽⁴⁾



Adherence to osteoporosis medications

Adherence to medications for chronic conditions is rarely perfect. A patient who fails to take his or her osteoporosis treatment is at higher risk of fragility fractures, reduced quality of life and even death (especially with hip fractures).⁽¹⁰⁾ The average 12-month adherence rate to bisphosphonates was 60% in one study analyzing a pharmacy claim database.⁽¹⁰⁾ This translates to four in 10 patients not taking their bisphosphonate properly at one year after starting. Another study showed that 57% of patients in a real-world practice were nonadherent within 2 years of starting their bisphosphonate.⁽¹⁰⁾

All pharmacy staff members have an important role in identifying and addressing nonadherence. Pharmacy technicians can ask patients who are not renewing their osteoporosis medication why they stopped the agent. This creates an opportunity to educate the patient on the risks of nonadherence and discuss any concerns they might have regarding medications. Many times some simple education or a small adjustment in the regimen can make a dramatic difference to overall adherence.

Role of the pharmacy technician in the management of osteoporosis

Pharmacy technicians are playing an increasing role in managing dispensary workflow and identifying potential issues that pharmacists should address.

As the case study at the start of the lesson illustrates, patients commonly misunderstand osteoporosis. It is a silent condition in that the patient often does not know he or she is at an elevated risk of fracture and complications.

The technician tips provided in this lesson highlight ways that technicians assist in the care of patients with osteoporosis. Pharmacy technicians can help identify patients who are at a high risk and can work collaboratively with the pharmacist to recommend appropriate screening and management of this condition.

Many patients who are being treated for osteoporosis will discontinue their prescribed therapy. Pharmacy technicians can help to identify these patients and flag them for education and counselling.

By working collaboratively with pharmacists, pharmacy technicians can help to improve overall workflow, identify

patients at risk of chronic conditions and help to ensure patients are taking their medications appropriately.

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QUESTIONS

Please select the best answer for each question or answer online at www.CanadianHealthcareNetwork.ca for instant results.

1. At what age does the average adult reach peak bone mass?

- a) 14–16 years
- b) 18–25 years
- c) 30–35 years
- d) 38–42 years

2. Which of the following affects the peak bone mass of an adult?

- a) Nutrition
- b) Overall health
- c) Genetic factors
- d) All of the above

3. Which of the following is a common symptom of osteoporosis?

- a) Pain
- b) Joint disfigurement
- c) Weakness
- d) Usually there are no symptoms

4. Which one of the following is most likely to be a fragility fracture?

- a) A broken clavicle while snowboarding
- b) A broken arm after falling off the roof of the shed
- c) A broken wrist after falling out of bed
- d) A broken pelvis during an automobile accident

5. What percentage of women will suffer from an osteoporosis-related fracture during their lifetime?

- a) < 1%
- b) 18%
- c) 25%
- d) 33%

6. A female patient says that breaking a hip is not a major problem. What percentage of women die within a year after breaking their hips?

- a) 8%
- b) 14%
- c) 38%
- d) 52%

7. What percentage of fractures in patients over the age of 50 years is caused by osteoporosis?

- a) 10%
- b) 15%
- c) 50%
- d) > 80%

8. Which of the following patients should have their bone density tested with DXA?

- a) Bill who is 72 years old
- b) Jane who took prednisone 50 mg daily twice for 7 days in the past year
- c) Kyle who is 42 years old and smokes
- d) All of the above

9. Bill (62 years old) is asking about vitamin D intake. Which of the following is an appropriate vitamin D dosage for Bill?

- a) 200 IU daily
- b) 400 IU daily
- c) 1000 IU daily
- d) He does not require vitamin D supplements

10. Leslie (52 years old) currently drinks two big glasses of milk per day (700 mg of calcium), but has few other sources of calcium in her diet. Which of the following would be the MOST appropriate calcium supplementation recommendation?

- a) She should not take any supplements, as she gets enough calcium from her diet
- b) 500 mg calcium daily
- c) 500 mg calcium twice daily
- d) 500 mg calcium three times daily

11. Peter has heard that calcium citrate is much better than calcium carbonate. Which of the following statements regarding calcium supplements is TRUE?

- a) Both calcium carbonate and calcium

citrate contain the same amount of elemental calcium

- b) Calcium citrate can be taken with or without food
- c) Calcium citrate is much better tolerated than calcium carbonate
- d) All of the above

12. Which one of the following statements regarding exercise in osteoporosis is TRUE?

- a) It greatly increases bone density
- b) Only weight-bearing exercise is effective
- c) It may help to reduce the risk of falls
- d) Exercise is not normally recommended with osteoporosis treatment

13. Hillary was prescribed alendronate 70 mg once weekly. What is the proper way to administer alendronate?

- a) Just before breakfast with 200–250 mL of any liquid
- b) At least 30 minutes before breakfast with 200–250 mL ounces of plain water
- c) She must stand and should not sit or lie down for 30 minutes after taking it

d) She could take it at night as this may help with adherence

14. Peter is asking for an oral bisphosphonate that will allow him to take the minimum number of tablets over a 3-month period. Which of the following is the most appropriate choice?

- a) Alendronate 70 mg
- b) Etidronate 400 mg
- c) Risedronate 150 mg
- d) Zoledronic acid 5 mg

15. What is a potential role for pharmacy technicians in the management of osteoporosis?

- a) Assessing patient adherence to the osteoporosis therapy.
- b) Identifying patients who are at risk of osteoporosis and flagging them for pharmacist consultation.
- c) Discussing various home healthcare recommendations that can reduce the risk of falls.
- d) All of the above.

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| 3. a b c d | 6. a b c d | 9. a b c d | 12. a b c d | 15. a b c d |

First Name _____ Last Name _____

Pharmacy Name _____

Primary Licensing Province _____ Licence # _____ Secondary Licensing Province _____ Licence # _____

Home Address _____ City _____ Province _____

Postal Code _____ Telephone _____ Fax _____

Email _____ Year Graduated _____

Type of practice

- Drug chain or franchise
- Banner
- Independent
- Mass merchandiser
- Grocery store pharmacy
- Hospital pharmacy
- Other (specify): _____

- Full-time technician
- Part-time technician

Are you a certified technician?
 Yes No

Please help ensure this program continues to be useful to you by answering these questions.

1. Do you now feel more informed about "Osteoporosis: An update for pharmacy technicians"? Yes No
2. Was the information in this lesson relevant to you as a technician? Yes No
3. Will you be able to incorporate the information from this lesson into your job as a technician? Yes No N/A
4. Was the information in this lesson... Too basic Appropriate Too difficult
5. How satisfied overall are you with this lesson?
 Very Somewhat Not at all
6. What topic would you like to see covered in a future issue? _____

HOW TO ANSWER:

Answer ONLINE for immediate results at www.CanadianHealthcareNetwork.ca

For information about CE marking, please contact Mayra Ramos at 416-764-3879 or fax 416-764-3937 or email mayra.ramos@rci.rogers.com. All other inquiries about Tech Talk CE should be directed to Vicki Wood at 416-764-3923 or vicki.wood@rci.rogers.com.

To answer this CE lesson online

Our CE lessons are hosted at **CanadianHealthcareNetwork.ca**, the online home of Pharmacy Practice and Drugstore Canada.

To take CE lessons online, sign in at **CanadianHealthcareNetwork.ca** and click on the My CE Online logo.



Already signed in? Use this handy quick link:

<http://www.CanadianHealthcareNetwork.ca/pharmacists/education/ce-online>

To find this lesson, enter the CCCEP number (1065-2014-966-I-T) in the "Quick Search CE Online" box, and hit "Go."

A screenshot of the My CE Online search interface. It shows a search bar labeled "Quick Search CE Online:" with a "Go" button to its right. Below the search bar, there is a "My CE Online" header with a user profile icon. Underneath, there are two links: "+ Home" and "+ View My Report Card". A red arrow points to the "Go" button.

Not registered at CanadianHealthcareNetwork.ca?

The process is quick and easy. Go now to **CanadianHealthcareNetwork.ca**

Upon completing your registration, you will immediately receive a verification email from us. Click on the link in the email, and your login credentials will be sent to you.

Your registration includes access to hundreds of pharmacy CE lessons, online tests, your certificates, report cards and more.

If you have any questions please contact:

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