

BREAKING BARRIERS **NOT BONES**



2008 NATIONAL REPORT CARD ON OSTEOPOROSIS CARE



Osteoporosis Canada

Ostéoporose Canada

TABLE OF CONTENTS

ACKNOWLEDGEMENTS	2
A LETTER TO ALL CANADIANS	3
EXECUTIVE SUMMARY	5
What The Data Revealed	5
Addressing The Gaps To Improve Osteoporosis Care	6
Moving Forward	7
THE HUMAN AND HEALTH CARE COSTS OF OSTEOPOROSIS	8
Cost To Psychosocial Health And Well-Being	8
Cost To The Health Care System	8
BONE MINERAL DENSITY (BMD) TESTING	9
Access Across Canada	9
OSTEOPOROSIS MEDICATION	11
Access Across Canada	11
PROVINCIAL/TERRITORIAL OSTEOPOROSIS INITIATIVES	14
QUICK FACTS ABOUT OSTEOPOROSIS	20
ABOUT OSTEOPOROSIS CANADA	22
RECOMMENDATIONS	23
APPENDIX A	25
Methodology For Grading Access To BMD Testing	25
APPENDIX B	26
Provincial And Territorial Drug Benefit Plans Studied	26
APPENDIX C	27
Methodology For Grading Formulary Access To Medication	27
REFERENCES	28
ADDITIONAL REFERENCES	29

ACKNOWLEDGEMENTS

This report card was made possible by the commitment and contributions of many individuals.

First and foremost, we wish to thank our Report Card Committee members and members of the Scientific Advisory Council Report Card Sub-Committee for their hard work in guiding and preparing this report.

We are also grateful for the input and support of the Osteoporosis Canada Board of Directors, the Scientific Advisory Council (SAC), the Operations Advisory Council, Osteoporosis Canada Chapters across the country, and the Canadian Osteoporosis Patient Network (COPN).

We would also like to express our appreciation to the provincial and territorial governments that provided and verified the data used for this report.

Our special thanks to Odette Falardeau, Larry Funnell, Emily Ismond, Marg MacDonell, Gordon Sullivan and Christine Thomas for sharing their personal stories and insights and to Advocacy Solutions, who helped with the development of this publication.

Breaking Barriers, Not Bones: 2008 National Report Card on Osteoporosis Care was made possible through unrestricted grants from AMGEN Canada Inc., Dairy Farmers of Canada, Eli Lilly Canada Inc., Merck Frosst Canada Ltd, Novartis Pharmaceuticals Canada Inc., Servier Canada Inc., The Alliance for Better Bone Health (Procter & Gamble Pharmaceuticals Inc. and sanofi-aventis Canada Inc.).

REPORT CARD COMMITTEE MEMBERS

Chair, Dr. Famida Jiwa, Vice President, Osteoporosis Canada

Julie M. Foley, President and CEO, Osteoporosis Canada

Dr. Diane Thériault, National Board Chair, Osteoporosis Canada, Nova Scotia

Dr. Kerry Siminoski, SAC Executive Member, University of Alberta, Alberta

Dr. Suzanne Morin, SAC Executive Member, McGill University, Quebec

Renu Kapoor, National Board Director, Osteoporosis Canada, Saskatchewan

Elda Clarke, Chair, Operations Advisory Council, Osteoporosis Canada, Saskatchewan

Marg MacDonell, Chair, Canadian Osteoporosis Patient Network, Osteoporosis Canada, Manitoba

SAC REPORT CARD SUB-COMMITTEE MEMBERS

Chair, Dr. Kerry Siminoski, SAC Executive Member, University of Alberta, Alberta

Dr. Alexandra Papaioannou, SAC Chair, McMaster University, Ontario

Dr. Suzanne Morin, SAC Executive Member, McGill University, Quebec

Dr. Stephanie Kaiser, SAC Executive Member, Dalhousie University, Nova Scotia

Dr. Bill Leslie, SAC Vice Chair, University of Manitoba, Manitoba

A LETTER TO ALL CANADIANS

The statistics are startling.

One in four women and at least one in eight men over the age of 50 have osteoporosis and it is estimated that as many as two million Canadians may be at risk of osteoporotic fractures during their lifetime.¹

Osteoporosis and the fractures it causes cost the health care system in excess of \$1.3 billion each year based on 1993 data.² In fact, over 80% of all fractures in people over the age of 60 are osteoporosis related.²

But numbers don't tell the full story. For the individuals who suffer wrist, spine, rib and hip fractures as a result of the disease, the stories are personal ones. Pain, disability, reduced mobility and long-term disability are all too frequent. Additionally, hip fractures related to osteoporosis result in death in up to 30% of cases.³⁻⁵ Some of those stories are included in this report; they are compelling examples of the impact this chronic disease has on individual lives.

Osteoporosis Canada is committed to helping individuals reduce their risk of osteoporosis and to ensuring that all Canadians have access to the best diagnosis and treatment. Two components that are critical to achieving this goal are access to bone mineral density (BMD) testing and access to medications. This Report Card allows Canadians to measure how well they are able to access these two elements through the publicly-funded health care system. It also provides a benchmark to measure future progress.

Our research reveals that access to BMD testing is far from adequate and only a small percentage of Canadians is being referred for BMD testing. Access to drug treatment that can help prevent fractures varies across the country; in some provinces, individuals with osteoporosis are restricted from accessing effective treatment options.

Action is required. Osteoporosis Canada is calling for a national strategy, and parallel provincial/territorial strategies, to provide coordinated osteoporosis care and to reduce debilitating fractures and their impact on individual lives and the health care system. We welcome the opportunity to partner with governments at the federal and provincial/territorial levels to develop and implement these strategies. Together we can improve the bone health of all Canadians.

Diane Thériault, MD, FRCPC
Chair, Board of Directors

Julie M. Foley
President and CEO

Dr. Famida Jiwa
Chair, Report Card Committee

EXECUTIVE SUMMARY

Osteoporosis Canada was established in 1982 with a mission to educate, empower and support individuals and communities in the prevention and treatment of osteoporosis. Its vision is *Canada without osteoporotic fractures*. The organization is governed by a national voluntary Board of Directors and guided by a Scientific Advisory Council comprised of medical and scientific experts. It has Chapters across the country and in excess of 1,000 volunteers that assist with its mission.

In keeping with its mission and vision, in 2007, Osteoporosis Canada established a committee to report on the status of osteoporosis care in Canada by gathering data in three areas:

- ❖ Access to bone mineral density (BMD) testing through the publicly-funded system.
- ❖ Access to osteoporosis medication through provincial/territorial public drug plans.
- ❖ Examples of provincially/territorially-funded initiatives in risk reduction, diagnosis and treatment of osteoporosis.

Using data provided by provincial and territorial governments, the Scientific Advisory Council Report Card Sub-Committee assessed and graded access to BMD testing and osteoporosis medications on provincial/territorial drug benefit plans across the country.

The Report Card also looked at various provincial initiatives undertaken within provinces to help in the care of osteoporosis. Due to the range and variety of provincial public education and disease management activities, no attempt was made to compare and grade these initiatives. Rather, the information was compiled and summarized to provide a cross-country picture of some government initiatives in an effort to highlight provincial activity related to osteoporosis care.

WHAT THE DATA REVEALED

Access to Bone Mineral Density (BMD) Testing

Analysis of the data on current rates of BMD testing across the country indicates that access is far from adequate – most provinces received a grade of C or lower. The results are as follows:

PROVINCE/TERRITORY	GRADE
BRITISH COLUMBIA	C
ALBERTA	B
SASKATCHEWAN	F
MANITOBA	F
ONTARIO	B
QUEBEC	D
NEW BRUNSWICK	D
NOVA SCOTIA	D
PRINCE EDWARD ISLAND	D
NEWFOUNDLAND AND LABRADOR	D
NORTHWEST TERRITORIES	D

Information was requested but not available from Nunavut and Yukon.
See Appendix A for a description of the grades.

Access to Osteoporosis Medication

Results were more positive in the area of access to osteoporosis medication. An assessment of the availability of medications on provincial/territorial public drug plans yielded grades ranging from A, the highest, to only one failing grade of F. The results are as follows:

PROVINCE/TERRITORY	GRADE
BRITISH COLUMBIA	C-
ALBERTA	C
SASKATCHEWAN	C
MANITOBA	C
ONTARIO	B
QUEBEC	A
NEW BRUNSWICK	C
NOVA SCOTIA	C
PRINCE EDWARD ISLAND	F
NEWFOUNDLAND AND LABRADOR	C
YUKON	B

Information was requested but not available from Nunavut and Northwest Territories.
See Appendix C for a description of the grades.

ADDRESSING THE GAPS TO IMPROVE OSTEOPOROSIS CARE

The impact of osteoporosis and the fractures it causes is significant – both on individuals who experience extreme pain and suffering and on the health care system with escalating hospitalization costs. A total of 80% of fractures are osteoporosis-related² yet less than 38% of fracture patients undergo diagnosis or adequate treatment for osteoporosis.⁶ Reducing fractures through risk reduction, early diagnosis and appropriate treatment of osteoporosis patients should be the goal of our health care system in addressing osteoporosis care. However, major gaps currently exist in providing access to BMD testing and medication for individuals with osteoporosis.

BMD Testing

Appropriate access to accurate, reliable BMD testing is an essential component of diagnosis and treatment. With early diagnosis, individuals can manage their osteoporosis and significantly reduce their fracture risk through lifestyle changes and medication. In addition, BMD testing allows individuals and their physicians to establish a baseline measure that can be used to monitor their course of treatment and the progression of their disease. This report reveals however, that access to BMD testing is far from adequate. Despite the existence of guidelines for identifying who should be tested, only a small percentage of Canadians is referred for BMD testing.

Osteoporosis Medication

The primary aim of drug treatment is to reduce fractures. However, it is important to note that some individuals respond better to one medication than another, or experience side effects on one medication and not another. Individuals must have access to a range of therapies to ensure that they receive medication that proves effective for them. As documented in this report, access to medications through provincial/territorial public drug plans varies across the provinces and is severely restricted in some parts of the country. As a result, many Canadians are blocked from accessing the various treatment options that could help to prevent future fractures.

A Comprehensive Framework

Access to adequate diagnosis and medication is critical. Osteoporosis is a chronic disease, and without appropriate intervention, its incidence will continue to rise as the number of older adults in our population increases. Disability and health costs associated with the disease will also increase, and the quality of life for hundreds of thousands of Canadians will be significantly reduced.

A comprehensive approach is required, and should include: public education to facilitate bone health; enhanced professional education at the primary care level; integration of care to ensure appropriate, timely and cost-effective diagnosis and management; and linkages with community resources to support disease self-management and fracture prevention. While several provinces are moving in that direction, the amount of investment and the nature of the initiatives vary widely across the country.

MOVING FORWARD

Osteoporosis care must be guided by medical necessity, not geography. Ensuring that Canadians with osteoporosis have access to adequate care regardless of where they live must be a priority.

Furthermore, the gap between appropriate access to publicly-funded BMD testing and medications and that which is currently available must be addressed in order to provide appropriate care for individuals with osteoporosis.

In the long-term, however, improving outcomes for individuals and reducing the impact of osteoporosis within the health care system will require a more comprehensive approach.

We recommend that:

- ❖ The federal and provincial/territorial governments work collaboratively to create a national strategy, supported by parallel provincial/territorial strategies that provide coordinated osteoporosis care.
- ❖ The strategies ensure that current and future initiatives in risk reduction, diagnosis and treatment are coordinated, evidence-based, comprehensive, and appropriately resourced within the publicly-funded system; and that they achieve the ultimate goal of reducing debilitating fractures and their impact on individual lives and the health care system.
- ❖ Osteoporosis Canada work in partnership with the federal and provincial governments to develop and implement comprehensive and integrated strategies.

To this end, we call on the federal and provincial governments to meet with us immediately to initiate the process of improving care for the estimated two million Canadians with osteoporosis.

PATIENT PROFILE

MARG MACDONELL
WINNIPEG,
MANITOBA



For Marg MacDonell, the diagnosis of osteoporosis came as a shock. It was a bone mineral density (BMD) test that confirmed it – she had bad osteoporosis in her spine.

Just 60, she was an avid gardener, hiker and cyclist. Osteoporosis was not something she had ever thought about.

“There was a part of me that absolutely refused to believe it was true,” she said. “And a part of me that was really, really frightened.”

That first year was one of major readjustments. A few years before, Marg had hoisted lumber as she and her husband built their own home. “Now suddenly I was being told that I shouldn’t lift my groceries because it might fracture my spine,” she says.

An icy Manitoba winter brought home the full impact of her diagnosis. “I drove over to do my Christmas shopping and parked in the parking lot at the mall,” Marg says. “I looked at the ice between the car and the mall, and I sat there and cried. I was afraid to get out of the car.”

After a year on medication, she returned to her doctor and asked for a BMD test. She wanted to confirm that the first test was correct and that the medication was making a difference. Her follow up BMD test came three years later and the wait took its toll.

“During those three years I went through a lot of emotional turmoil,” says Marg. “A large part of me thought there had been an error in the test results. I really wanted the diagnosis confirmed or denied.”

It’s now been six years since her initial diagnosis. Marg’s bone mineral density has improved with the help of medication and she has not suffered any fractures. But the fear of falling and breaking a bone is always there. “I have to say no when my friends go skiing, curling and golfing”, she says, and long winter walks are a thing of the past.

“My husband and I always used to walk outside,” she says. “But now, once winter comes, I don’t go out. He says, ‘Let’s go for a walk’ but while he goes out, I go down to the treadmill because I’m afraid.”

THE HUMAN AND HEALTH CARE COSTS OF OSTEOPOROSIS



PATIENT PROFILE

EMILY ISMOND
HAZEL HILL,
NOVA SCOTIA

Driving is a way of life if you live in rural Nova Scotia. Buying groceries, going to the bank, seeing a doctor – all involve a drive, and sometimes a long one.

But for 69-year-old Emily Ismond, travel is particularly challenging. Diagnosed with osteoporosis when she was in her late 40s, she suffers chronic pain as the result of numerous fractures. The nearest location for bone mineral density (BMD) testing is Truro, two-and-a-half hours away and the drive to her osteoporosis specialist is even longer. The long distances and the rough roads can make the trips an ordeal.

“If my back is bad, it’s really hard,” she says. “I think I had tears running down my face the last time I went to Truro.”

Emily is one of many who would like to see a bone densitometer at the regional hospital in Antigonish, an hour closer for people living in her part of the province. She points out that for older people, especially those not able to drive themselves, a five-hour round trip for a BMD test is just not feasible.

Despite her pain, Emily lives her life as fully as she can. She’s also learned to live with the constant risk of fractures. She broke her first rib while shoveling snow, and a second one when picking up an empty clothes basket. A few years later she broke a bone in her back while raking her yard – a fracture that required months of painful healing. Several years ago she stepped into a shallow depression in her yard and broke both ankles.

It’s the fractures in Emily’s back however, that have left her the most disabled.

“There’s not a day my back doesn’t hurt.” she says. Still, she adds, “I do everything. I won’t give up – there’s no way.”

One in four women and at least one in eight men over the age of 50 suffers from osteoporosis.¹ Osteoporosis causes bones to become thin and weak, with the result that they break very easily.

Because osteoporosis does not cause pain, often the first warning sign is a broken bone. Once an individual has broken a bone due to osteoporosis, they are more likely to break another one.⁷⁻¹⁰ Yet fewer than 38% of people who fracture go on to be assessed for osteoporosis.⁶

Both vertebral (spine) and hip fractures result in an increased mortality rate.¹¹⁻¹³ Hip fractures are the most devastating type of fracture. Up to 23% of women and an even higher percentage of men who suffer hip fractures will die within six months of related complications, such as pneumonia or a blood clot.¹¹ Many who survive are permanently disabled and one-quarter of hip fracture patients who survive for one year still cannot walk without assistance.¹²

COST TO PSYCHOSOCIAL HEALTH AND WELL-BEING

Fractures have a profound impact on an individual’s quality of life. One Canadian study of adults age 50 and older found that those with osteoporotic fractures had significantly lower health-related quality of life than those who have not experienced a fracture.¹⁴

Fractures associated with osteoporosis have been associated with increased morbidity, mortality, length of hospital stay, and institutionalization.¹⁵ Pain and a fear of falling can cause individuals to avoid being active and restrict their social activities, leading to isolation from family and friends. In addition, osteoporosis can negatively impact a person’s self-esteem, especially if fractures cause a loss of height or forward curvature of the spine called kyphosis.

Women with established osteoporosis frequently report fear, anxiety and depression.¹⁶ In one study, a majority of elderly women reported that they would choose death over having a hip fracture and being admitted to a nursing home.¹⁷

The disease can also place a significant burden on family caregivers who share the anxiety of the disease and are often required to assume additional responsibilities as a result of their family member’s disability and decreased mobility.

COST TO THE HEALTH CARE SYSTEM

Fractures caused by osteoporosis are associated with considerable suffering and illness, hospitalization, transfer to long-term care facilities and death. The impact on the health care system and the cost to society are substantial.

According to the findings of a Canadian study of 18 different health conditions, hip and vertebral fractures were among the top three conditions associated with extended hospital stays and substantial health care costs.¹⁸ The study found that a hip fracture patient who returns home after hospitalization costs the health care system in excess of \$21,385 in direct costs, while a patient who must be institutionalized costs over twice as much: \$44,156.¹⁹ Another study reported that only 44% of people discharged from hospital for a hip fracture return home. Of the rest, 10% go to another hospital, 27% go to rehabilitation care and 17% go to long-term care facilities.²⁰

In 1981, Canadians had over 17,000 hip fractures.²¹ A total of 80% of fractures can be attributed to osteoporosis.² By 1995, the total number of hip fractures had increased to almost 27,000²¹ and the annual cost of treating osteoporotic fractures in Canada was over \$1.3 billion.²

BONE MINERAL DENSITY (BMD) TESTING

Appropriate access to accurate, reliable BMD testing is an essential component in diagnosis and treatment. Early diagnosis allows individuals to engage in appropriate lifestyle and treatment strategies to reduce the risk of fracture or re-fracture. In addition, BMD testing allows individuals and their physicians to establish a baseline measure that can be used to monitor the course of treatment.

Osteoporosis Canada recommends that:

- ❖ All individuals age 65 or older receive BMD testing.
- ❖ All adults between the ages of 50 and 65 be assessed each year for their risk of osteoporosis and those with one major risk factor or two or more minor risk factors receive bone mineral density testing.
- ❖ After beginning therapy, patients should be retested in one to two years in order to assess the impact of treatment.
- ❖ For individuals who do not require therapy, repeat BMD testing is recommended in one to five years in those deemed to be at a moderate risk of fracture and in five to 10 years in those deemed to be a low risk of fracture.

ACCESS ACROSS CANADA

Information was collected from the ministries of health in each province and territory on the number of individuals who received publicly-funded bone mineral density (BMD) tests in the period of April 1, 2006 to March 31, 2007.

The data was reviewed and grading assigned. See Appendix A for grading methodology.

The results show that provinces are not providing adequate access to BMD testing – most provinces received a grade of C or lower. The results are as follows:

PROVINCE/TERRITORY	GRADE	RATE/1000 POPULATION 65 AND OVER
BRITISH COLUMBIA	C	222
ALBERTA	B	335
SASKATCHEWAN	F	95
MANITOBA	F	59
ONTARIO	B	317
QUEBEC	D	166
NEW BRUNSWICK	D	178
NOVA SCOTIA	D	144
PRINCE EDWARD ISLAND	D	137
NEWFOUNDLAND AND LABRADOR	D	188
NORTHWEST TERRITORIES	D	189

Information was requested but not available from Nunavut and Yukon. See Appendix A for a description of the grades.

Calcium and Vitamin D

In childhood, calcium is necessary to grow a healthy skeleton to support a growing body. The greater an individual's peak bone mass (reached at age 20 in men and age 16 in women), the less likely that bones will become porous and fragile later in life. Adequate calcium intake can help to maintain bones as an individual ages. Studies of older adults show that adequate calcium intake can slow bone loss and lower the risk of fracture.

Vitamin D3 increases calcium absorption by as much as 30 to 80 percent.

Osteoporosis Canada's Recommended Calcium Intake

Age	Daily calcium requirement
4 to 8	800 mg
9 to 18	1300 mg
19 to 50	1000 mg
50+	1500 mg
Pregnant or lactating women 18+	1000 mg

Osteoporosis Canada's Recommended Vitamin D Intake

Osteoporosis Canada recommends that Canadians aged 19 to 50, including pregnant or lactating women, receive at least 400 international units (IUs) of vitamin D3 per day. Adults over 50 should receive at least 800 IUs.

An analysis of BMD testing indicates that it has a positive impact on physicians' treatment decisions and on patients' willingness to adhere to treatment.²² For example:

- ❖ Patients who have BMD testing are nine times more likely to be given treatment than those who do not.
- ❖ Without BMD testing, 80% of patients with a history of fractures are not given osteoporosis therapies.
- ❖ A total of 40% of women over age 65 who had BMD testing initiated treatment, versus 6% of those with hip or wrist fractures but no BMD test.
- ❖ Women who were tested were also more likely to continue their treatment.

BMD testing is an important diagnostic tool for osteoporosis, which assists individuals and health care providers to further support the management and treatment of osteoporosis. Additionally, once an individual has been accurately diagnosed and is receiving appropriate treatment, their likelihood of sustaining a future fracture is decreased.

Osteoporosis Canada seeks to work with provincial governments to help determine how best to improve appropriate access to BMD testing for all Canadians.

PATIENT PROFILE

GORDON AND WINNIFRED SULLIVAN,
HAMILTON,
ONTARIO

"It was miraculous."

That's how Gordon Sullivan describes the pain relief his wife Winnifred experienced after receiving treatment for her osteoporosis as part of a clinical trial several years ago.

A healthy and active woman in her late seventies, Winnifred regularly cross-country skied several days a week in the winter. Her troubles began however after she slipped and fell on some black ice while out walking. She learned later that she had fractured her spine – and that she had osteoporosis. Treatment with medication was only moderately successful and when she fell again some time later, the result was more fractures.

Winnie died in 2005 at age 84, but Gordon remembers the pain that wouldn't go away.

"You can't imagine the agony it was for her," he says. Walking and movement of any kind became more and more painful. He remembers one visit to the doctor in particular: "It took my daughter and I and the doctor 10 to 15 minutes to get her up on to an examining table, the pain was so bad," he says.

With existing treatments proving ineffective, her specialist enrolled her in a clinical research trial for a new medication. Gordon recalls that within a month, Winnifred's pain began to lessen. "Finally, she got to be absolutely pain free," he says.

The experience has made him a strong advocate for adequate access to medications for individuals with osteoporosis. "This isn't just taking away a headache or fixing a cold," he says. "This is extreme pain. You're talking human suffering. I saw it. I saw it for a long time."

OSTEOPOROSIS MEDICATION

The primary aim of drug treatment is to reduce fractures. However, it is important to note that some individuals respond better to one medication than another, or experience side effects on one medication and not another.

Individuals without a private or employer health plan or sufficient personal resources may qualify for coverage by publicly-funded provincial/territorial public drug plans. Provinces/territories are responsible for deciding which Health Canada approved medications to include in their public drug plans, often referred to as formularies. Provinces/territories provide selected drug coverage for eligible groups, such as individuals over 65 years of age and those on social assistance. See Appendix B for a list of the drug plans included in this report card.

ACCESS ACROSS CANADA

Information was collected from the ministries of health in each province and territory on access to osteoporosis medications as of December 31, 2007.

Each province and territory uses its own terminology for describing drug coverage. For the purposes of this report, three categories were created:

Open Access: Drugs that are covered by the provincial/territorial public drug plan and require no special criteria or paperwork.

Restricted Access: Drugs that are covered by the provincial/territorial public drug plan but require special authorization from the plan, or require the prescriber or pharmacist to apply on behalf of their patients to indicate how specific medical criteria are met.

Not Accessible: Drugs that are not covered by the provincial/territorial public drug plan.

Table 1 summarizes public drug plan coverage in each of the provinces/territory. The data was reviewed and grading assigned. See Appendix C for grading methodology.

The results for access to osteoporosis medication on provincial/territorial public drug plans were better than those for BMD access. Grades range from A to one failing grade of F.

PROVINCE/TERRITORY	GRADE
BRITISH COLUMBIA	C-
ALBERTA	C
SASKATCHEWAN	C
MANITOBA	C
ONTARIO	B
QUEBEC	A
NEW BRUNSWICK	C
NOVA SCOTIA	C
PRINCE EDWARD ISLAND	F
NEWFOUNDLAND AND LABRADOR	C
YUKON	B

Individuals must have access to a range of therapies to ensure that effective treatment options for them can be available. The results of our research demonstrate that while some provinces are doing very well, there are many others that are simply not providing this access to individuals living with osteoporosis in their jurisdiction.

Osteoporosis Canada seeks to work with the provincial governments to increase access to treatment options for all Canadians living with osteoporosis, and to reduce the unnecessary health care costs of treating preventable osteoporotic fractures.

Information was requested but not available from Nunavut and Northwest Territories. See Appendix C for a description of the grades.

TABLE 1: PROVINCIAL ACCESS TO ETIDRONATE, ALENDRONATE, RISEDRONATE, CALCITONIN,

Note: Access to a generic equivalent is generally reported to be identical to that of the relevant brand name medication.

				TYPE
PROVINCE	BISPHOSPHONATES*			
	ETIDRONATE (DIDROCAL®) (GENERIC AVAILABLE)	ALENDRONATE (FOSAMAX® / FOSAVANCE®)		RISEDRONATE (ACTONEL®)
		FOSAMAX® (GENERIC AVAILABLE)	FOSAVANCE®	
BC	Open Access	Restricted Access	Not Accessible	Restricted Access
AB	Open Access	Restricted Access	Not Accessible	Restricted Access
SK	Open Access	Restricted Access	Not Accessible	Restricted Access
MB	Open Access	Restricted Access	Not Accessible	Restricted Access
ON	Open Access	Open Access	Open Access	Open Access
QC	Open Access	Open Access	Not Accessible	Open Access
NB	Open Access	Restricted Access	Not Accessible	Restricted Access
NS	Open Access	Restricted Access	Not Accessible	Restricted Access
PEI	Restricted Access	Not Accessible	Not Accessible	Not Accessible
NFLD	Open Access	Restricted Access	Not Accessible	Restricted Access
YT	Open Access	Open Access	Open Access	Restricted Access

Note: Information in this table is current as of December 31, 2007 and information in these footnotes is current as of October 31, 2008.

*^{PR}Aclasta™ (zoledronic acid 5mg/100mL) was approved in Canada for the treatment of postmenopausal osteoporosis (PMO) in October 2007. • It is reimbursed in Quebec (effective October 1, 2008) for the treatment of PMO among women who cannot tolerate oral bisphosphonates. • In Ontario, Aclasta is approved for reimbursement under the Ontario Public Drug Programs' Exceptional Access Program for the treatment of osteoporosis in PMO women who are unable to absorb or take oral products.

OF LISTING

CALCITONIN	SELECTIVE ESTROGEN RECEPTOR MODULATORS (SERMS)	TERIPARATIDE (PTH)
(MIACALCIN®) (GENERICS AVAILABLE)	RALOXIFENE (EVISTA®)	(FORTEO®)
Not Accessible	Restricted Access	Not Accessible
Restricted Access	Restricted Access	Not Accessible
Restricted Access	Restricted Access	Not Accessible
Restricted Access	Restricted Access	Not Accessible
Restricted Access	Restricted Access	Not Accessible
Open Access	Open Access	Restricted Access**
Restricted Access	Restricted Access	Not Accessible
Restricted Access	Restricted Access	Not Accessible
Not Accessible	Not Accessible	Not Accessible
Restricted Access	Restricted Access	Not Accessible
Restricted Access	Open Access	Not Accessible

** Forteo in Quebec is not listed on the formulary but case by case reimbursement is possible through the "Patient d'exception" procedure.

PROVINCIAL/TERRITORIAL OSTEOPOROSIS INITIATIVES

The following information represents examples of programs that have either been implemented or sponsored by provincial governments to help address the need for osteoporosis care. We present these examples to demonstrate some of the good work of the provinces and to encourage regions where no such programs exist to undertake similar initiatives. This information was supplied by the ministry/department of health in each province and territory unless otherwise noted. Information was requested, but not available, from all provinces and territories.

BRITISH COLUMBIA

In January 2008, the Ministry of Health, through the division of Population Health and Wellness, provided a one-time grant to the BC Recreation and Parks Association (BCRPA) and its partners to develop physical activity standards and a program targeted towards older people who are frail.

In 2006, the Ministry of Health funded the British Columbia Division of Osteoporosis Canada and The Arthritis Society to develop an Osteoporosis, Rheumatoid Arthritis and Osteoarthritis Service Delivery Framework.

ALBERTA

Alberta Health and Wellness recently entered into an agreement with Capital Health Region (Edmonton area) to develop a province-wide framework to promote bone health, prevent osteoporosis, and manage fractures associated with osteoporosis. The framework will target individuals at highest risk of fracture. The planned strategies are:

- ❖ Catch a Break: a Health Link Alberta (a health phone line) strategy for the identification and follow-up of fragility fractures of the wrist, arm, pelvis, hip, rib and ankle.
- ❖ Know Osteo: a coordinated strategy utilizing provincial osteoporosis coordinators to promote evidence-based practice around bone densitometry, vertebral fracture reporting, appropriate treatment and other gaps in care.
- ❖ Bone-Wise: a targeted prevention to key segments of the population, utilizing existing chronic disease management and prevention networks and partnerships, community pharmacists, primary care networks and Health Link Alberta.

MANITOBA

Manitoba Health and Healthy Living is currently undertaking two programs in partnership with the Manitoba Chapter of Osteoporosis Canada. The programs are:

- ❖ Bone Health Public Education Program: the dissemination of educational materials into the community through workshops, presentations and displays at various forums.
- ❖ Falls prevention program.

NOVA SCOTIA

In June 2002, a provincial working group produced a report outlining key issues and recommendations regarding the prevention, diagnosis and treatment of osteoporosis in Nova Scotia. All recommendations have been implemented with the following outcomes:

- ❖ Ongoing implementation of the Physical Activity and Healthy Eating Initiatives, including changing policies in the school system to promote healthy eating.
- ❖ Province-wide, multi-sectoral educational initiative on falls prevention.
- ❖ Development and rollout of a standardized framework for falls and risk assessment for all sectors.

- ❖ Implementation of calcium and vitamin D supplementation in 60% of all long-term care facilities.
- ❖ Criteria for bone density testing accepted as provincial guidelines and distributed to all physicians. These guidelines are in compliance with Osteoporosis Canada's 2002 Clinical Practice Guidelines.
- ❖ A standardized BMD report in accordance to the 2005 Osteoporosis Canada/Canadian Association of Radiologists recommendations implemented for all BMD units in the province.
- ❖ Additional BMD units obtained.
- ❖ Revisions to formulary completed regarding medications for the treatment of osteoporosis.
- ❖ Telehealth sessions on osteoporosis available to all District Health Authorities to support patients, families and providers.

The Department will also incorporate key findings from a recent initiative with Bone and Joint Canada in order to improve osteoporosis assessment.

ONTARIO

Ontario has developed a coordinated and integrated approach for the management of osteoporosis. The Ontario Osteoporosis Strategy is aimed at preventing and managing osteoporosis and reducing fragility fractures, i.e., osteoporotic fractures. It provides an integrated approach by which Ontario can improve access to quality care for individuals and families to improve health outcomes and address an anticipated increasing demand to the health care system in a proactive, cost-effective and efficacious manner.

The Strategy has 5 key components:

1. Health promotion
2. Screening
3. Post-Fracture Care
4. Professional Education
5. Research and Evaluation

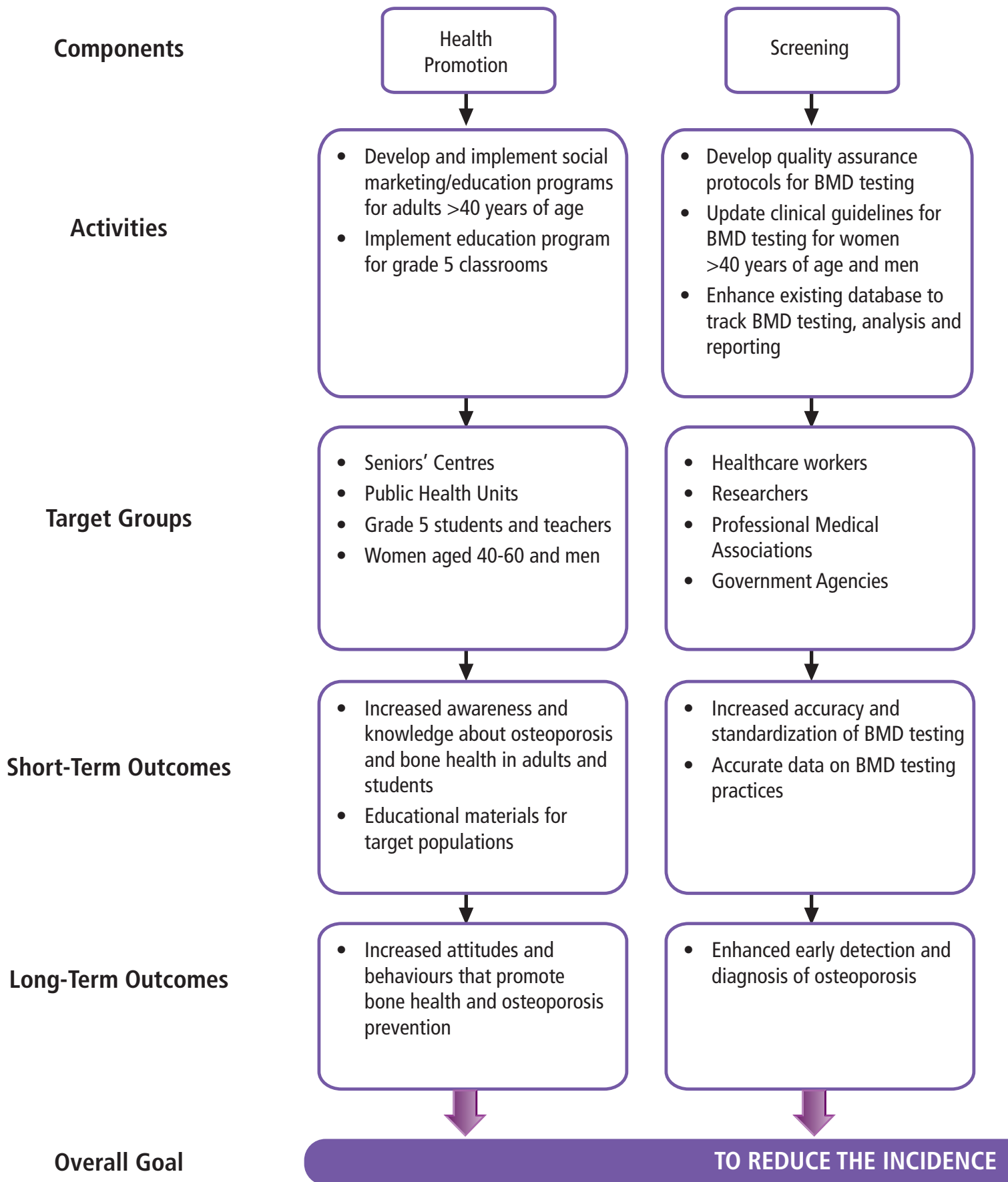
See **Table 2** on the next page for a visual description of the Ontario Strategy.

Preventing Falls

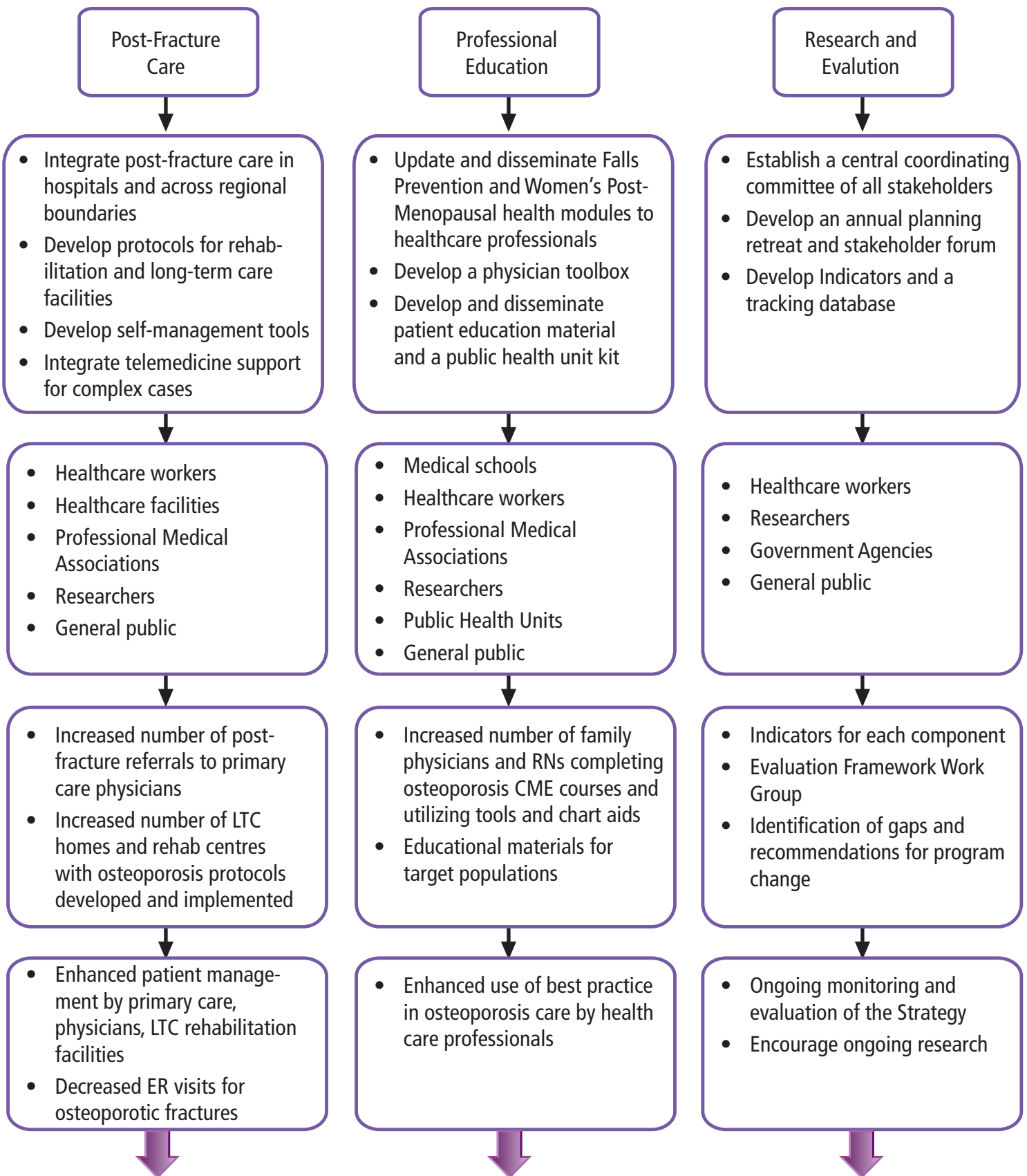
Individuals with fragile bones are much more likely to break a bone if they fall. But a variety of strategies can help to prevent falls:

- Arrange a home visit from a physiotherapist or occupational therapist to provide advice on how to reduce hazards that can lead to falls.
- Remove scatter rugs, protruding furniture and cords.
- Wear low-heeled shoes that give good support.
- Watch for uneven ground, sidewalks and floors and pets that are underfoot.
- Keep stairs in good repair, with handrails on both sides, free of clutter and well lit.
- Consider the potential side effects of medications (prescription, over-the-counter and herbal). Certain medications may increase the risk of falling. For example, blood pressure medications may cause a drop in blood pressure and fainting in some people. Other medications, such as those used to help people sleep and antidepressants, may cause drowsiness or a decrease in alertness thereby increasing the risk of a fall.
- Stay physically active. Individually tailored exercise programs that include muscle strengthening, balance training and walking are effective in reducing falls.

TABLE 2: A LOGIC MODEL FOR THE ONTARIO OSTEOPOROSIS STRATEGY



Note: Extracted from Ontario Ministry of Health and Long-Term Care, Ontario Osteoporosis Strategy, Logic Model



One important component of the Ontario Osteoporosis Strategy is its approach to post-fracture care. Research has shown that a person who has experienced a fragility fracture is at high risk of another fracture. Over 90% of wrist and 53% of hip fracture patients receive written information regarding fracture care. However, osteoporosis is not mentioned to the majority of fracture patients.²³ To avoid a subsequent fracture, patients require appropriate investigation of osteoporosis, which involves a risk assessment, BMD test, and treatment, if appropriate. Fewer than 20% of patients who sustain an osteoporotic fracture are tested or treated for osteoporosis in the acute care settings.²⁴

For a post-fracture intervention to be successful, the patient must be provided with information and instructions to make an appointment with his or her family physician for assessment of osteoporosis. The primary care provider must also be notified that the patient has had a fracture and provided with details about screening and treatment guidelines.²⁵

The Strategy funding allows for the provision of a dedicated Osteoporosis Screening Coordinator in high and medium volume fracture clinics in Ontario. In this integrated model, all patients who present at an emergency department or fracture clinic with low trauma fragility fractures (women and men aged 50 and older) will be identified and followed up for osteoporosis prevention, diagnosis and treatment to help prevent re-fractures.

While some provinces have clearly invested in developing osteoporosis programs in their jurisdictions, it is our desire that all Canadians have access to publicly-funded osteoporosis programs.

Assessing Risk Factors

No single cause for osteoporosis has been identified; however, certain risk factors play a role in its development. Risk factors are additive, meaning that the more risk factors an individual has, the greater the risk of developing osteoporosis. Note that people with no apparent risk factors may still develop this disease.

Osteoporosis Canada (OC) recommends that all men and postmenopausal women over 50 be assessed for the presence of risk factors for osteoporosis. Osteoporosis Canada also recommends that individuals over age 50 who have at least one major risk factor or two or more minor risk factors, and all individuals 65 or older, talk to their physician about being referred for a bone mineral density (BMD) test.

Major risk factors

- Age 65 or older
- Vertebral compression fracture
- Fracture with minimal trauma after age 40
- Family history of osteoporotic fracture (especially if mother had a hip fracture)
- Long-term (more than 3 months continuously) use of glucocorticoid therapy such as prednisone
- Medical conditions (such as celiac disease, Crohn's disease) that inhibit absorption of nutrients
- Primary hyperparathyroidism
- Tendency to fall
- Osteopenia apparent on x-ray
- Hypogonadism (low testosterone in men, loss of menstrual periods in younger women)
- Early menopause (before age 45)

There are also a number of minor risk factors including: rheumatoid arthritis, hyperthyroidism, body weight less than 57 kg (125 lbs.) in women, low calcium intake and smoking.

Because the main health implication of osteoporosis is the increased possibility of fracture, OC recommends that individuals also consider their risk factors for fracture.

Key risk factors for fracture

- Low bone mineral density (BMD)
- Prior fragility (low-trauma) fracture
- Long-term (more than 3 months continuously) use of glucocorticoid therapy such as prednisone
- Age – the risk of fracture increases with age
- Family history of osteoporotic fracture



CHRISTINE THOMAS

OTTAWA, ONTARIO

For the first year of her daughter's life, Christine Thomas didn't pick her up. She couldn't.

It began just after she and her husband brought their newborn home: "I was bending over the crib to pick her up to change her," says Christine. "I felt something, and then nearly passed out from the excruciating pain."

It took months before she discovered the cause – spinal fractures caused by osteoporosis.

Only 42, Christine had just come through a difficult pregnancy that required her to take a blood thinning medication and spend several months confined to bed rest. Both contribute to bone loss, and Christine is also small-boned with a family history of osteoporosis. Looking back, she realizes, "I was an accident waiting to happen." Still, it took many months of doctors' appointments, tests and a hospital stay before the diagnosis was confirmed.

"Part of me was relieved because I had a diagnosis," she says. "At the same time I was shocked because I was so young."

Her specialist told her she could not lift her daughter for a year because her risk of re-fracturing was too high. She and her husband had to hire a nanny to care for both Thomas and her daughter. The emotional toll was high and Christine struggled with depression. "I felt like I was on the sidelines," she says. "It was really, really difficult."

And then there was the pain caused by the fractures, even after they healed. "The two years after my daughter was born are a blur," she says, "because I spent most of it trying to manage excruciating pain."

In the years since, she has learned to cope with the realities of the disease. She remains on osteoporosis medication and adapts all her movements to reduce the chance of another fracture. Even her daughter, now seven years old, learned long ago to crawl into her mother's lap rather than reach to be picked up.

"The pain comes and goes," Christine says. "I go for periods now where I find it much better, but I have to be cautious and conscious of what I'm doing. Even putting dishes in the dishwasher, laundry in the washer, leaning over to put something in the fridge – you know the proper motions, but it's difficult to do them."

Her experience has made Christine a strong osteoporosis advocate. Now Chair of the Ottawa Chapter of Osteoporosis Canada, she wants to see more energy and resources devoted to educating individuals, health professionals and policymakers on the need to prevent osteoporosis and the fractures it causes. That includes ensuring access to medication for individuals who need it.

"Compared to the cost of fractures," she says, "it's pennies to be paying for prevention."

QUICK FACTS ABOUT OSTEOPOROSIS

Men and Osteoporosis

Although it is more common in women, osteoporosis is a serious health issue for men. According to a Canadian study of healthy men and women, the number of spinal fractures is similar in men and women over the age of 50.¹ Elderly men account for almost 30% of hip fracture cases and are more likely to die after a hip fracture than women.²

Osteoporosis is less common in men than in women for a number of reasons. Men have greater peak bone mass and do not experience the accelerated bone loss women do at menopause. As well, they generally do not live as long and are less likely to fall than elderly women.

Osteoporosis Canada recommends that all men over 50 discuss their risk factors for osteoporosis with their physician. Osteoporosis Canada also recommends that men who are at risk or who are 65 and older talk to their physician about being tested for osteoporosis.

- ❖ Osteoporosis is a disorder of bones where bone strength is decreased and there is an increased risk of breaking a bone. This leads to an increased risk of fracture, particularly of the hip, spine and wrist.
- ❖ Although major and minor risk factors for osteoporosis have been identified, no single cause has been determined.
- ❖ Osteoporosis can be managed through a combination of adequate calcium and vitamin D intake, physical activity and appropriate medications.
- ❖ One in four women and at least one in eight men over the age of 50 have osteoporosis and it is estimated that as many as two million Canadians may be at risk of osteoporotic fractures during their lifetime.¹
- ❖ The annual cost of treating osteoporotic fractures in Canada is in excess of \$1.3 billion, based on 1993 figures.²
- ❖ A hip fracture patient costs the health care system in excess of \$21,385 in direct costs in the first year after hospitalization and in excess of \$44,156 if the patient is institutionalized.¹⁹
- ❖ A total of 80% of fractures are osteoporosis-related,² yet less than 38% of fracture patients undergo diagnosis or adequate treatment for osteoporosis.⁶
- ❖ 23% of patients who fracture a hip die in less than a year.^{3-5, 11}



LARRY FUNNELL CLOVERDALE, BRITISH COLUMBIA

Throughout his 40s, Larry Funnell had a reputation as a klutz.

A slip on a step led to a broken wrist. A stumble at a cottage earned him a broken collarbone. Banging into an empty cardboard box in the basement resulted in two broken ribs.

It wasn't until he broke his arm in a fall on the soft, grassy slope of a golf course that a doctor connected the dots and suggested there was a problem with his bones. It was his 10th fracture. A bone mineral density (BMD) test confirmed he had low bone mass.

"That was the first time a doctor had mentioned the word osteoporosis to me," Larry says. "I was shocked, of course. I thought, 'It can't be, I'm a man. Men don't get osteoporosis.'"

With the diagnosis hanging over his head, he suddenly became aware of every movement. "You worry that you might break a bone just lifting the dog on to the couch," he says. "There were things I wasn't doing with my grandchildren who were quite young at the time because I worried something might happen."

Embarrassment kept Larry from telling friends and colleagues he had the disease. Ironically, he also felt some relief. Finally it wasn't just his clumsiness that was causing the problem – something else was going on.

Nine years later, Larry is optimistic. He's had no further fractures which suggests that medication is making a difference. He feels fortunate to have a medical plan that covered the costs of the drugs. "One of my concerns is that older people may not have access to treatment that could help them," he says, "because some osteoporosis medications aren't covered by BC's drug plan."

Two years ago Larry also became involved in the Canadian Osteoporosis Patient Network and started sharing his story for the first time. "It took away some of the reluctance and the embarrassment," he says. But he's aware that many men don't realize they could have osteoporosis. And many of those who are diagnosed probably feel the way he once did. "Look at the statistics," he says. "Men just aren't admitting it."

In the meantime, Larry is determined not to let the fear of breaking bones overshadow his life. "It doesn't have to be a debilitating disease," he says. "You can live with it. You can live well."

ABOUT OSTEOPOROSIS CANADA

Established in 1982, Osteoporosis Canada (OC) was the first national organization for osteoporosis in the world and is the only national charitable organization serving Canadians who have, or are at risk of, osteoporosis. OC works to educate, empower and support individuals and communities in the risk reduction and treatment of osteoporosis. A national voluntary Board of Directors governs the organization, and the Scientific Advisory Council, made up of medical and scientific experts from across Canada, provides guidance in all medical matters. The work of Osteoporosis Canada is made possible by the generosity of individual donors, by corporate sponsorship, and by a number of fundraising events held across Canada.

The vision of OC is *Canada without osteoporotic fractures*.

The mission of Osteoporosis Canada is to work towards a future where all Canadians will:

- ❖ Be knowledgeable about osteoporosis.
- ❖ Be empowered to make informed choices about their bone health.
- ❖ Have access to the best osteoporosis care and support.
- ❖ Benefit from research into the prevention, diagnosis and treatment of osteoporosis.

SERVICES

Osteoporosis Canada, in partnership with dedicated volunteers and 24 Chapters across the country, is committed to providing the highest quality services to help Canadians take care of their bones.

These services include but are not limited to:

- ❖ Support groups across the country to help individuals living with osteoporosis.
- ❖ Advocacy initiatives to ensure all Canadians have access to the best osteoporosis care.
- ❖ COPN, the Canadian Osteoporosis Patient Network, a person-centred network whose vision is to help women and men affected by osteoporosis to live well and safely.
- ❖ Educational sessions for the public, offering the latest in osteoporosis information.
- ❖ Speakers to address community and corporate groups about osteoporosis.
- ❖ Public awareness displays at wellness fairs, health promotion days and other events.
- ❖ *Osteoporosis Update*, a publication providing general practitioners and family physicians with the latest information on osteoporosis.
- ❖ Guidelines and standards that have been developed by OC's Scientific Advisory Council for use by physicians in their clinical practices.

Osteoporosis Canada
1090 Don Mills Road, Suite 301
Toronto, Ontario
M3C 3R6
1-800-463-6842 (English)
1-800-977-1778 (French)

www.osteoporosis.ca

RECOMMENDATIONS

Osteoporosis care must be guided by medical necessity, not geography. Ensuring that Canadians with osteoporosis have access to adequate care regardless of where they live must be a priority.

Furthermore, the gap between what is appropriate access to publicly-funded BMD testing and medications and what is currently available must be addressed in order to provide appropriate care for individuals with osteoporosis.

In the long-term, however, improving outcomes for those living with the disease and reducing the impact of osteoporosis within the health care system will require a more comprehensive approach.

We recommend that:

- ❖ The federal and provincial/territorial governments work collaboratively to create a national strategy, supported by parallel provincial/territorial strategies that provide coordinated osteoporosis care.
- ❖ The strategies ensure that current and future initiatives in risk reduction, diagnosis and treatment are coordinated, evidence-based, comprehensive and appropriately resourced within the publicly-funded system, and that they achieve the ultimate goal of reducing debilitating fractures and their impact on individual lives and the health care system.
- ❖ Osteoporosis Canada work in partnership with the federal and provincial/territorial governments to develop and implement comprehensive and integrated strategies.

To this end, we call on the federal and provincial governments to meet with us immediately to initiate the process of improving care for the estimated two million Canadians with osteoporosis.²⁶

Reducing the Risk of Osteoporosis

An individual can take the following steps to lower their risk of osteoporosis:

- Know your risk factors and change the ones you can.
- Maintain a balanced diet and get the calcium and vitamin D you need.
- Include regular weight-bearing physical activity throughout life. Adults should take part in physical activity for a minimum of 30 minutes at least three times a week. Exercises that improve balance, coordination and posture are also recommended.
- Avoid excess caffeine (i.e., consistently more than four cups a day of coffee, cola and some energy drinks).
- Avoid excess alcohol (i.e., consistently more than two drinks a day).
- Avoid smoking.

Discuss osteoporosis with your doctor if you have:

- lost six or more cm in height overall (four cm if under age 60) or two or more cm in less than three years.
- used glucocorticoid therapy (such as prednisone) for more than three months continuously.
- done a risk factor assessment with your physician that shows you to be a high-risk individual.
- recently had a fracture in which osteoporosis is suspected.



ODETTE FALARDEAU LACHINE, QUEBEC

“The first time I broke a vertebra, it was from lifting a pot from the oven,” says Odette Falardeau. “Another time it was from coughing.”

Ask 55-year-old Odette about her fractures and she finds it hard to remember them all. Four vertebral fractures. A broken elbow from lifting a child. Two broken knees when she stumbled in an entranceway. Fractures have become a regular occurrence in her life since she was diagnosed with osteoporosis 12 years ago.

Unlike most people, Odette was not surprised to discover she had osteoporosis – she has been on the drug prednisone since her early teens. The compromising effect of years on the medication was confirmed by a bone mineral density (BMD) test in her early 40s. It wasn’t until she began to fracture that the full impact of her diagnosis became clear.

Caution has now become a way of life. She uses a cane in the winter to reduce the chance of falling. She asks others to do lifting for her – including lifting pots from the oven or stove. Driving has become a risk – a bump could mean another vertebral fracture. Even a hug from a family member requires care.

“It changes your life a lot,” she says. “I’m always afraid of breaking something, of falling. It’s always on my mind.”

Odette also does everything she can to strengthen her bones. She watches her diet, takes calcium and vitamin D and exercises regularly. Drug treatment has helped, but the pain from her previous vertebral fractures remains.

“The pain is always there,” she says. “When I stand up, if I sit for a long period, walking and when I sleep.” Even simple movements like lifting her arms to get dressed can be challenging. She has lost height and developed kyphosis, a curve in her back caused by multiple vertebral fractures.

“People around you don’t realize how bad it is,” she says. “I never talk about the pain and my limitations because they won’t understand. For many, osteoporosis is for old people.”

Despite her challenges, Odette refuses to be discouraged. Instead, she focuses her energy on helping others reduce their risk of developing osteoporosis. She volunteers with Osteoporosis Canada, encouraging individuals to look at their risk factors, to get tested if they are at risk and to take action.

“We make a difference, but we have a lot of work to do,” she says.

APPENDIX A

METHODOLOGY FOR GRADING ACCESS TO BMD TESTING

BMD data was requested from each province and territory for the period from April 1, 2006 to March 31, 2007, indicating the number of individuals receiving bone mineral density testing. Provincial and territorial population data was also used.

Rates of testing were expressed as total BMD tests done in the province or territory divided by the number of people in the jurisdiction over age 65 (as an indicator of the primary target population according to the 2002 OC Guidelines). Rates ranged from 59 to 335 tests per thousand.

In order to assign the grades for the provinces and territory, two factors were considered:

1. Canadian studies report that many eligible patients are not receiving BMD tests.^{27,28}
2. The highest rate of testing was much less than would be expected if the 2002 Osteoporosis Canada BMD testing guidelines were being followed.

Consequently, the highest grade assigned was B (AB and ON). One province had a rate somewhat lower and received a grade of C (BC). A number of provinces and the one territory for which data was available had testing rates substantially lower than these and received grades of D (QC, NS, NB, PE, NL, NT). The lowest level of BMD testing was markedly lower still and these provinces were assigned a grade of F (SK, MB).

Information was not available for two territories (YT, NU) and grades were not assigned.

Note: There is a lack of data available on a population-wide basis to be able to determine the optimal rate of BMD testing as per the 2002 Osteoporosis Canada BMD testing guidelines in this first national Report Card.

Physical Activity

Physical activity is an important factor in risk reduction and treatment of osteoporosis. It assists in building and maintaining healthy bones and by improving muscle strength, posture, balance and coordination, it may reduce the risk of falls and fractures.

Healthy bones require that individuals achieve an ample peak bone mass when they are young, and maintain it as they age. Physical activity, combined with adequate calcium and vitamin D, plays an important role in this process.

Physical activity places an increased "load" or force on bones, which respond by forming new bone and remodelling the bone to be stronger. Two types of physical activity can help to improve bone mass:

- Weight-bearing activities – those where bones and muscle work against the force of gravity. Activities like walking, jogging, aerobics, dancing, stair climbing and skating are all examples of weight-bearing exercise.
- Resistance exercises – those which use objects or one's own body weight to create resistance. This type of exercise strengthens a particular muscle group, which in turn has a bone-building effect in that area. The use of free weights, weight-training machines or exercise bands are examples of resistance exercise.

Activities and exercises that improve balance and coordination are also important as a way to reduce falls and fractures.

APPENDIX B

Testing for Osteoporosis

Bone mineral density (BMD) tests accurately measure the density of an individual's bones. A BMD test, together with an assessment of risk factors for osteoporosis and fracture, can determine whether or not an individual has osteoporosis and their 10-year risk of sustaining an osteoporotic fracture.³

Osteoporosis Canada recommends the following:

- all individuals age 65 or older receive BMD testing.
- all adults between the ages of 50 and 65 be assessed each year for their risk of osteoporosis and those with one major risk factor or two or more minor risk factors receive bone mineral density testing.
- after beginning therapy, patients should be retested in one to two years in order to assess the impact of treatment.
- for individuals who do not require therapy, repeat BMD testing is recommended in one to five years in those deemed to be at moderate risk of fracture and in 5 to 10 years in those deemed to be at low risk of fracture.

PROVINCIAL AND TERRITORIAL DRUG BENEFIT PLANS STUDIED

The table below lists the names of the public drug plans used in this Report Card. In each case, the plan with the broadest coverage was used to determine access.

PROVINCE/TERRITORY	PLAN NAME
BRITISH COLUMBIA	BC PHARMACARE
ALBERTA	ALBERTA HEALTH AND WELLNESS DRUG BENEFIT LIST
SASKATCHEWAN	SASKATCHEWAN FORMULARY
MANITOBA	MANITOBA DRUG BENEFITS AND INTERCHANGEABILITY FORMULARY
ONTARIO	ONTARIO DRUG BENEFIT (ODB) PROGRAM
QUEBEC	RÉGIME GÉNÉRAL D'ASSURANCE-MÉDICAMENT
NEW BRUNSWICK	NEW BRUNSWICK PRESCRIPTION DRUG PROGRAM
NOVA SCOTIA	NOVA SCOTIA SENIORS' PHARMACARE PROGRAM (NSSPP)
PRINCE EDWARD ISLAND	PRINCE EDWARD ISLAND DRUG COST ASSISTANCE PROGRAMS FORMULARY
NEWFOUNDLAND AND LABRADOR	NEWFOUNDLAND AND LABRADOR INTERCHANGEABLE DRUG PRODUCTS FORMULARY
YUKON	YUKON PHARMACARE FORMULARY

APPENDIX C

METHODOLOGY FOR GRADING FORMULARY ACCESS TO MEDICATION

Table 1 lists access to the six osteoporosis medications (etidronate, alendronate, risedronate, calcitonin, selective estrogen receptor modulators (SERMS), and teriparatide (PTH)) in each province and one territory and was used for grading provincial drug access. Each province and territory uses its own terminology for describing drug access. In order to simplify the process, three general categories were created:

Open Access: Drugs that are covered by the provincial/territorial public drug plan and require no special criteria or paperwork.

Restricted Access: Drugs that are covered by the provincial/territorial public drug plan but require special authorization from the plan, or require the prescriber or pharmacist to apply on behalf of their patients to indicate that specific medical criteria are met.

Not Accessible: Drugs that are not covered by the provincial/territorial public drug plan.

Available information indicates that whenever a brand-name is covered, the corresponding generics have the same accessibility.

The province with the highest level of drug accessibility, Quebec, had open access to five of six medications, and restricted access to the sixth. It was felt that this was a sufficient level of access to assign a grade of A.

The province with the lowest level of access, PEI, had no open access to any medication and restricted access to cyclical etidronate. All other medications were not accessible. This level of access was considered so poor that it was given a grade of F. This produced a grade range from A to F.

One province and one territory had access slightly inferior to that of the province given a grade of A, with open access to three medications and restricted access to two medications. These jurisdictions were given grades of B.

Most of the provinces (AB, SK, MB, NS, NB, NL) had an intermediate level of access, with open access to only cyclical etidronate and restricted access to four medications. This profile was given a grade of C. One province (BC) had a similar profile to this, except that one of the medications (calcitonin) was not accessible, and consequently was given a grade of C-.

Information was not available for two territories (NWT, NT), and these were not graded.

Treating Osteoporosis

A number of drug treatments are available to treat osteoporosis. The true purpose of osteoporosis medications is to reduce the risk of fractures.⁴

Bone is a living tissue that is constantly renewed through a process in which old bone is removed and replaced by new bone. Cells called osteoclasts erode older, tired bone, creating small cavities; bone-forming cells called osteoblasts then fill in the cavities with new bone. There are two types of medications:

- Those that interfere with the bone-eroding part of the bone remodelling cycle by inhibiting the action of the osteoclasts.
- Those that enhance the bone-building part of the cycle by encouraging the activity of the osteoblasts.

The majority of drug treatments – bisphosphonates (etidronate, alendronate, risedronate), SERMs (Selective Estrogen Receptor Modulators), calcitonin all fall into the first category – they slow down bone erosion. Teriparatide (PTH) is in the second category.

Individuals may need to explore several treatment options to find a medication that is effective for them with minimal or no side effects.

REFERENCES

1. Hanley DA, Josse RG. Prevention and management of osteoporosis: consensus statements from the Scientific Advisory Board of the Osteoporosis Society of Canada. *Can Med Assoc J*. 1996;155:921-3.
2. Goeree R, O'Brien B, Pettitt D, Cuddy L, Ferraz M, Adachi J. An assessment of the burden of illness due to osteoporosis in Canada. *J Soc Obstet Gynaecol Can*. 1996;18(suppl July):15-24.
3. Cree M, Soskolne CL, Belseck E, Hornig J, McElhaney JE, Brant R, Suarez-Almazor M. Mortality and institutionalization following hip fracture. *J Am Geriatr Soc*. 2000;48:283-8.
4. Iacovino JR. Mortality outcomes after osteoporotic fractures in men and women. *J Insur Med*. 2001;33:316-20.
5. Cummings RG, Melton LJ. Epidemiology and outcomes of osteoporotic fractures. *Lancet*. 2002;359:1761-7.
6. Elliot-Gibson V, Bogoch ER, Jamal SA, Beaton DE. Practice patterns in the diagnosis and treatment of osteoporosis after a fragility fracture: a systematic review. *Osteoporosis Int*. 2004;15:767-78.
7. Johnell O, Kanis JA, Oden A, Sernbo I, Redlund-Johnell I, Petterson C, De Laet C, Jonsson B. Fracture risk following an osteoporotic fracture. *Osteoporosis Int*. 2004;15:175-9.
8. Klotzbuecher CM, Ross PD, Landsman PB, Abbott III TA, Berger M. Patients with prior fractures have an increased risk of future fractures: a summary of the literature and statistical synthesis. *J Bone Miner Res*. 2000;15:721-39.
9. Melton III LJ, Atkinson EJ, Cooper C, O'Fallon WM, Riggs BL. Vertebral fractures predict subsequent fractures. *Osteoporosis Int*. 1999;10:214-21.
10. Schroder HM, Petersen KK, Erlandsen M. Occurrence and incidence of the second hip fracture. *Clin Orthop Relat Res*. 1993;289:166-9.
11. Haleem S, Lutchman L, Mayahi R, Grice JE, Parker MJ. Mortality following hip fracture: trends and geographical variations over the last 40 years. *Injury*. 2008;39:1157-63.
12. Miller W. Survival and ambulation following hip fracture. *J Bone Joint Surg Am*. 1978;60A:930-34.
13. Hasserijs R, Karlsson MK, Nilsson BE, Redlund-Johnell I, Johnell O. European Vertebral Osteoporosis Study. Prevalent vertebral deformities predict increased mortality and increased fracture rate in both men and women: a 10-year population-based study of 598 individuals from the Swedish cohort in the European Vertebral Osteoporosis Study. *Osteoporosis Int*. 2003;14:61-8.
14. Adachi JD, Ioannidis G, Berger C, Joseph L, Papaioannou A, Pickard L. The influence of osteoporotic fractures on health-related quality of life in community-dwelling men and women across Canada. *Osteoporosis Int*. 2001;12:903-8.
15. Johnell O, Kanis JA. An estimate of the worldwide prevalence and disability associated with osteoporotic fractures. *Osteoporosis Int*. 2006;17:1726-33.
16. Gold DT. The clinical impact of vertebral fractures: quality of life in women with osteoporosis. *Bone*. 1996;18(3 suppl):185S-89S.
17. Salkeld G, Cameron ID, Cumming RG. Quality of life related to fear of falling and hip fractures in older women: a time trade off study. *Brit Med J*. 2000;320:341-6.
18. Papaioannou A, Adachi JD, Parkinson W, Stephenson G, Bédard M. Lengthy hospitalization associated with vertebral fractures despite control for comorbid conditions. *Osteoporosis Int*. 2001;12:870-4.
19. Wiktorowicz ME, Goeree R, Papaioannou A, Adachi JD, Papadimitropoulos E. Economic implications of hip fracture: health service use, institutional care and cost in Canada. *Osteoporosis Int*. 2001;12:271-8.
20. Jaglal S. Osteoporotic fractures: incidence and impact. In Williams JI, Badley EM, eds. *Patterns in Health Care in Ontario: Arthritis and Related Conditions*. Toronto: ICES. 1998:143-56.
21. Lorrain J, Paiement G, Chevrier N, Lalumière G, Laflamme GH, Caron P, Fillion A. Population demographics and socioeconomic impact of osteoporotic fractures in Canada. *Menopause*. 2003;10:228-34.
22. Johnston C. Strengthening drugs likely after women have bone density tests. *Medical Post*. 2002;38
www.medicalpost.com/mdlink/english/members/medpost/data/3804/36A.8/19/02.
23. Jaglal SB. Development of a Model for Integrated Post-Fracture Care in Ontario. *Ontario Women's Health Council*. 2003:1-92.
24. Hajcsar EE, Hawkes G, Bogoch ER. Investigation and treatment of osteoporosis in patients with fragility fractures. *CMAJ*. 2000;163:819-22.
25. Brown JP, Josse RG, for the Scientific Advisory Council of the Osteoporosis Society of Canada. 2002 clinical practice guidelines for the diagnosis and management of osteoporosis in Canada, *CMAJ*. 2002;167(10 suppl):S1-S34.
26. Estimate based on 1 in 4 women and 1 in 8 men, and 2006 population data.
27. Metge CJ, Leslie WD, Manness LJ, Yogendran M, Yuen CK, Kvern B. Postfracture care for older women: gaps between optimal care and actual care. *Can Fam Physician*. 2008;54:1270-6.
28. Bessette L, Ste-Marie LG, Jean S, Davison KS, Beaulieu M, Baranci M, Bessant J, Brown JP. The care gap in diagnosis and treatment of women with a fragility fracture. *Osteoporosis Int*. 2008;19:79-86.

ADDITIONAL REFERENCES

The following references refer to the boxed information on pages 20, 26, and 27.

1. Jackson SA, Tenenhouse A, Robertson L and the CaMos Study Group. Vertebral fracture definition from population-based data: preliminary results from the Canadian Multicentre Osteoporosis Study (CaMos). *Osteoporosis Int.* 2000;11:680-7.
2. Jiang HX, Majumdar SR, Dick DA, Moreau M, Raso J, Otto DD, Johnston DW. Development and initial validation of a risk score for predicting in-hospital and 1-year mortality in patients with hip fractures. *J Bone Miner Res.* 2005;20:494-500.
3. Siminoski K, Leslie WD, Frame H, Hodsman A, Josse RG, Khan A, Lentle BC, Lévesque J, Lyons DJ, Tarulli G, Brown JP. Recommendations for Bone Mineral Density Reporting in Canada. *Can Assoc Radiol J.* 2005;56:178-88.
4. Delmas PD. The use of bisphosphonates in the treatment of osteoporosis. *Curr Opin Rheumatol.* 2005;17:462-6.



**2008 NATIONAL REPORT CARD
ON OSTEOPOROSIS CARE**

Osteoporosis Canada

1090 Don Mills Road, Suite 301, Toronto, Ontario M3C 3R6

Telephone: (416) 696-2663 • Fax: (416) 696-2673

www.osteoporosis.ca



Osteoporosis Canada
Ostéoporose Canada