Osteoporosis, Falls, Fractures and the Fracture Screening and Prevention Program

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Objectives

• *To highlight the interrelation of falls, fractures and osteoporosis.*

• To provide an increased understanding about ‘what is osteoporosis?’.

• To provide an overview of the Ontario Osteoporosis Strategy.

• To provide an overview of the Fracture Screening and Prevention Program.
What is Osteoporosis?

“Osteoporosis is a skeletal disorder characterized by compromised bone strength predisposing a person to an increased risk of fracture.”

Consensus Development Conference, JAMA 2001; 285: 785-95
What is Osteoporosis?

Osteoporosis

Is called the “silent thief” because there are no symptoms of bone loss. Bones become gradually weaker and cannot stand a force or pressure, and a break may occur
Prevalence

• 1 in 3 women and 1 in 5 men will suffer from an osteoporotic fracture in their lifetime

• Almost 2 million Canadians live with osteoporosis, including 785,000 men and women in Ontario

• 57,000 osteoporotic fractures in Ontario each year
Common Fracture Sites

Fractures to the wrist, spine and hip are the most common
Definitions

What is a fall?

“A sudden and unintentional change in position resulting in an individual landing at a lower level such as on an object, the floor, or the ground, with or without injury.” ¹

What is a fragility fracture?

“A fracture occurring spontaneously or following minor trauma such as a fall from standing height or less (excludes craniofacial, hand, ankle and foot fractures).” ²,³,⁴

Mechanisms of Sustaining a Fragility Fracture:

- Slip and fall on ice or snow
- Trip over object such as carpet, phone cord, curb, pet
- Trip and fall on sidewalk, road, grass
- Slip on wet/dry floor
- Fall out of bed or off of a chair while sitting
- Lifting an object i.e. bag of groceries
- A hug that results in a fracture
- No fall or known injury (spontaneous fracture)
- Being pulled by a dog
- Slide on mud
Trio of Interrelated Health Issues

Osteoporosis

Falls

Fractures
Key service gaps:
Inadequate focus on fracture risk assessment and risk reduction
Inappropriate diagnostic testing, inconsistency in reporting
Fragmented post-fracture care and management
Inadequate management at the family health care level
Inadequate awareness/access to clinical tools and resources
Lack of access to specialists and guideline-based care/referrals

ONTARIO OSTEOPOROSIS STRATEGY
Mandate: reduce morbidity, mortality and costs from osteoporotic fractures using a patient-centred, multidisciplinary approach that is integrated across health care sectors

Expected Impact: reduce osteoporotic hip fractures in Ontario by 20% by 2020
Incidence of Fractures in Canada

Fractures from osteoporosis in Canadian women are more common than heart attack, stroke and breast cancer combined¹

Annual incidence of common diseases

- Osteoporotic fractures¹,²
  - Hip*: 30,000
  - Wrist: 32,700
  - Vertebral: 38,900
  - Other: 41,500

- Heart Attack³: 49,220

- Stroke³: 29,874

- Breast Cancer⁴: 22,700

¹Canadian hip fractures from (1); Non-hip fracture data extrapolated from (2).
²Other represents non-osteoporotic fractures sites (humerus, clavicle, hands/fingers, patella, tibia, fibula).
³Canadian Institute for Health Information (2009) Health Indicators.
⁴Canadian Cancer Society. 2009.

OOS Core Priority Areas

**FRACTURE PREVENTION**
Reduce the risk of hip and other osteoporotic fractures

**PROFESSIONAL EDUCATION and OUTREACH**
Increase evidence-informed practice by healthcare professionals

**PATIENT EDUCATION AND SELF-MANAGEMENT**
Increase capacity of at-risk patients to understand and manage their fracture risk
Why Secondary Fracture Prevention?

- At least one in three women and one in five men will suffer a fragility fracture in their lifetime \(^1\)\(^-\)\(^4\)

- Fragility fractures are common - fractures for up to 95% of hospitalized inpatients > 75 years and 80% to 90% of inpatients admitted between 60 - 74 years, can be attributed to osteoporosis. \(^5\)

- Risk of subsequent fracture in this population increases 1.5 to 9.5-fold. \(^6\)\(^-\)\(^12\)

- The risk of experiencing another vertebral fracture in the year following a vertebral fracture\(^†\): 20% \(^13\)

- The risk of experiencing another fracture in the year following a hip fracture: 5% – 10% \(^14\), \(^15\)

- Over 80% of falls-related admissions to hospitals in Canadian seniors are due to fracture. \(^16\)
References for previous slide:

Making the Connection…

It is estimated that between 20% and 30% of seniors fall each year.¹

- Falls are major risk factors for subsequent fractures, with 5-10% of falls resulting in a fracture.²

- A fracture remains one of the most significant risk factors for predicting future fractures.³, ⁴

¹ Statistics Canada 2010
Osteoporosis and fragility fractures throughout the life course

At its worst, the osteoporotic life-experience can be one of remorseless progression (BOA-BGS ‘Blue Book’, 2007)

By **missing the opportunity** to respond to the first fracture, healthcare systems around the world are **failing to prevent** the second and subsequent fractures (“Capture the Fracture” report, 2012)
“The risk of sustaining a fracture increases exponentially with age due not only to the decrease in bone mineral density, but also due to the increased rate of falls among the elderly. The elderly represent the fastest growing segment of the population. Thus, as life expectancy increases for the majority of the world’s population, the financial and human costs associated with osteoporotic fractures will increase dramatically unless preventive action is taken.”

Capture the Fracture, IOF report 2012

By 2031 almost a quarter of our population will be seniors as compared to 15% in 2011.

(Statistics Canada 2010)
The most serious manifestation of osteoporosis is a fragility fracture.

The consequences of fracture include increased mortality, morbidity, institutionalization and economic costs.¹,²

Significance of Fragility Fractures

- Population-based study of Canadians – osteoporosis rated as having greater impact on quality of life than COPD, diabetes mellitus, or heart disease. ¹

- Loss of confidence and fear of falling reported with all types of fractures. ², ³

- Less than 40% who experience a hip fracture return to prior walking abilities. ², ³

- Clinical vertebral fractures negatively affect self-care and mobility and are associated with chronic pain (in women). ⁴

Osteoporotic Hip Fractures

- Considered the most devastating fragility fracture.
- ~1% of seniors who fall experience a hip fracture.
- 95% of hip fractures are caused by falls.
- 70-90% of hip fractures are due to osteoporosis.
- 15-25% of hip fracture patients require admission to a nursing home.

Osteoporotic Hip Fractures

• A fracture occurring spontaneously or following minor trauma such as a slip, trip or fall from standing height or less.

• Approximately half of all patients who suffer a hip fracture warned us they were coming; they had previously broken another bone — a ‘signal’ fracture — before breaking their hip. 1-4

• One in three hip fracture patients re-fracture at one year and over 1 in 2 will suffer another fracture within 5 years. 5

• Twenty-eight percent of women and 37% of men who suffer a hip fracture will die within the following year. 6

One-year Mortality Risk after Hip Fracture

- Overall: 25%
- Patients in long-term care: 39%

References:
Osteoporotic Hip Fractures

- Osteoporotic hip fractures consume more hospital bed days than stroke, diabetes, or heart attack. Only 44% of people hospitalized with a hip fracture are discharged home. Of the remainder, 10% go to another hospital, 27% go to a rehabilitation centre and 17% go to long-term care facilities.  

- Once an osteoporotic fracture has occurred, another is more likely to occur in the absence of treatment.  

- Effective drug treatments can reduce future fracture risk by 50% for patients presenting with fragility fractures.  

Osteoporotic Hip Fractures

- 12,303 hip fractures in Ontario Y2013. Each hip fracture costs the health care system: $21,000 in the first year after hospitalization (if the patient returns home) and $44,156 if the patient is institutionalized after hospitalization. ¹

- With the aging population, the annual cost of hip fractures alone is projected to rise to $2.4 billion annually by 2041. ¹

- Hip Fracture Patients are considered HIGH RISK of a future fracture
  - Pharmacologic therapy recommended (as per Clinical Practice Guidelines)

Post-Fracture Osteoporosis Care Gap

Despite the availability of BMD testing and coverage of osteoporosis medications by provincial public drug plans, recent Canadian data indicates that over 80% of fracture patients are never offered screening and/or treatment for osteoporosis post fracture. ¹, ²

Without appropriate diagnosis and treatment, these patients remain at substantial risk for recurrent, debilitating and life threatening osteoporotic fractures.

¹ Hajcsar EE, et al. CMAJ 2000;163(7):819-822
Quality Improvement Initiative: Benefits to Patients

By focusing on the at-risk fragility fracture patients, we can:

➤ reduce the risk of future fractures
➤ improve the quality of life for patients and their families
➤ reduce the burden on the healthcare system.
Fracture Screening and Prevention Program (FSPP)

Goal:

- Increase rate of referral of fracture patients for assessment and treatment of osteoporosis in order to reduce the risk of re-fractures.
Fracture Screening and Prevention Program Objectives

- Improve fracture risk assessment and identification of at-risk patients
- Improve quality of support provided to at-risk patients in fracture clinic settings
- Ensure the appropriate use of diagnostic and assessment tools, including bone mineral density (BMD) testing, to support fracture risk assessment and osteoporosis diagnosis
- Promote integration of post-fracture care, rehabilitation and osteoporosis management for fracture patients in acute care settings
- Facilitate access to specialist support locally or through telemedicine to ensure appropriate assessment and care for patients with complex needs and for patients in rural and remote areas
Fracture Screening and Prevention Program (FSPP) - Key Facts

Fragility fractures in Ontario:
Estimated: 60,000 fragility fractures annually; 13,000 hip fractures

Status:
- Currently, 28 Fracture Prevention Coordinators trained and deployed in 36 high/medium volume fracture clinics across Ontario; intervention reaches ~8,000 patients annually
- ~70,000 fragility fracture patients identified, educated and referred for diagnosis and treatment since 2007
- Multi-site program adapting to local/regional situation but following standard screening and data collection protocols. Allows for comparison between sites, different clinical pathways.
- Primary care EMR module now available to trigger appropriate care within primary care setting

Status as of January 2017
Target Population = 18,775
Mean Age = 72.7 years
Age Range = 50-109 years
Gender = 84% female

Most Frequent Fragility Fractures:
- 7996 (42.6%) wrist
- 3413 (18.2%) shoulder
- 3119 (16.6%) hip
- 1458 (7.8%) ankle
- 1265 (6.7%) elbow
Status: Risk Factors

Target population screened = 18,775

OP Risks – all self-report

- 20.9% Previous fracture (n= 3,123)
- 9.7% Parental hip fracture (n=1,456)
- 16.0% Weight less than 58kg or 132lbs (n=2,393)

Fall Risks

- 96.7% current fracture due to a fall (n=18,163)
- 22.5% fell in past year excluding fall that caused the fracture (n=3,454)
- 29.1% unsteady, trouble getting up (n=4,461)

November 4, 2014 – February 28, 2017
Status

- 20.4% self reported they are taking a medication for osteoporosis or fracture prevention

- 13.3% had a BMD in the past year (not on treatment at time of screening)
  - 14.2% of those who had a BMD reported osteoporosis
  - 24.2% of those who had a BMD reported low bone density
Perception of Bone Health

• 15.9% of patients think that their broken bone was caused by poor bone strength

  **BUT**

• 43.7% *do not think so* and
• 34.1% *do not know!*
Perception of Bone Health

• 38.1% of patients are worried/concerned about their bone health as a result of the fracture

BUT

• 40.7% of patients are not concerned and
• 14.9% do not know!
Perception of Bone Health

Many of our fragility fracture patients are not making the connection between the fracture, fall and osteoporosis/bone health.

“It was a really hard fall.”

“You would have broken your bone too, if you had fallen like that.”
Perception of Bone Health

“If I had fallen another 90 degrees to the left or 50 degrees to the right, it wouldn’t have broken.”

“It might just have been the way I fell because I was trying to protect my back, deliberately.”

“One 87-year-old female told us that all her fractures were self-induced and “caused by misadventures” due to her high activity levels.

“I caught my toe on the edge of the carpet and shot out of a catapult practically on to the side walk”

“And I sort of hurtled forward. It wasn’t just a fall down. It was like a hurtling...I was really surprised at how fast I went down and heavily. So I put out my left arm quickly and of course, it was such a jolt that I dislocated my left shoulder and also fractured the area.”
FSPP Interventions

- Letter to Primary Care Provider (listing action taken/recommendations)
- Requisition for Bone Mineral Density Test (for eligible patients)
- Referral to Osteoporosis Specialist (as appropriate)
- Information/Referral to local Fall Prevention Programs
- Bone Fit Locator – trained health care providers/exercise practitioners
- LTC Transfer Summary Sheet
- Follow Up (not on treatment patients) three to seven months post screening
Fracture Facts

- If you have already had a fracture, you may be at high risk for another fracture.
- A spine or hip fracture puts you at very high risk for another fracture – you need treatment for osteoporosis.
- Spine fractures are not always painful but can result in loss of height, a rounded back or both.
- Any fracture after age 40 means you may need a bone density test and a fracture risk assessment with FRAX or CAROC.

Take Action

Your risk of having another fracture can be reduced!
Ask your doctor about diagnosis and treatment options.

Why Do Bones Break?

A fracture or broken bone that happens when you...
- trip, slip or have a minor fall
- pick up a child or an object
- make a bed
- cough or sneeze
- or perform a simple task

...may be the result of a condition known as OSTEOPOROSIS, which causes bones to break easily.

Did You Know?

OSTEOPOROSIS:
- Increases the risk of broken bones
- Occurs in both men and women
- Increases with age but can also affect younger individuals
- Can be inherited

A fracture may be your FIRST and ONLY sign of osteoporosis and can lead to MORE fractures.

An Important Checklist

To reduce your risk of fractures, see your doctor and take this brochure with you!

1. TELL YOUR DOCTOR ABOUT:
- Any bones you have broken as an adult
- Any loss of height
- Any previous falls

2. ASK YOUR DOCTOR FOR:
- A height measurement
- A spine X-ray if you’ve lost height
- A falls assessment
- A fracture risk assessment using FRAX or CAROC
- A bone density test (a simple, painless X-ray)

3. LEARN ABOUT OSTEOPOROSIS
- Contact Osteoporosis Canada at www.osteoporosis.ca or toll free at 1-800-463-5842

Ask your doctor about a fracture risk assessment.
ONTARIO OSTEOPOROSIS STRATEGY

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*Expected Impact: reduce osteoporotic hip fractures in Ontario by 20% by 2020*
Thank you!