



Overview of Osteoporosis & the Older Adult

Education for Health Care Professionals

Part 3: Assessment of Osteoporosis



Copyright © CSAH 2017

1

Assessment

According to the Canadian 2010 Clinical Practice Guidelines:



- Men and women over the age of 50 should be assessed for osteoporosis risk factors and fracture, particularly if they have experienced a fragility fracture in the past.
- Height is to be measured annually to assess if there are vertebral fractures.
- A falls history for the past year should be completed. (If there has been a fall then a **sit to stand** test using a armless chair is to be conducted).

(Papaioannou et al., 2010)



Copyright © CSAH 2017

2

Assessment - FRAX[®]

Calculation Tool

Please answer the questions below to calculate the ten year probability of fracture with BMD.

Country: **Canada** Name/ID: About the risk factors

Questionnaire:

1. Age (between 40 and 90 years) or Date of Birth
 Age: Date of Birth: Y: M: D:

2. Sex Male Female

3. Weight (kg)

4. Height (cm)

5. Previous Fracture No Yes

6. Parent Fractured Hip No Yes

7. Current Smoking No Yes

8. Glucocorticoids No Yes

9. Rheumatoid arthritis No Yes

10. Secondary osteoporosis No Yes

11. Alcohol 3 or more units/day No Yes

12. Femoral neck BMD (g/cm²)
 Select BMD



Weight Conversion

Pounds kg

Height Conversion

Inches cm

00525943

Individuals with fracture risk assessed since 1st June 2011

(FRAX, no date)

Copyright © CSAH 2017

3



Recommendations for Testing

Recommended Biochemical Tests for Patients Being Assessed for Osteoporosis

According to the Canadian 2010 Clinical Practice Guidelines

- Calcium, corrected for albumin
- Complete blood count
- Creatinine
- Alkaline phosphatase
- Thyroid-stimulating hormone
- Serum protein electrophoresis (for patients with vertebral fractures)
- 25-Hydroxyvitamin D*

*Should be measured after three to four months of adequate supplementation and should not be repeated if an optimal level (at least 75 nmol/L) is achieved

Table adapted from Papaionnou et al., 2010

(Papaioannou et al., 2010)

Copyright © CSAH 2017

4



Indications for Measuring BMD

Indications for Measuring Bone Mineral Density in Older Adults (age ≥ 50 years)
Age ≥ 65 yrs for both women and men
Clinical risk factors for fractures: <ul style="list-style-type: none"> • Fragility fracture after age 40 yr • Prolonged use of glucocorticoids* • Use of other high-risk medications † • Parental hip fracture • Vertebral fracture or osteopenia identified on radiography • Currently a smoker • High alcohol intake • Low body weight (<60kg) or major weight loss (> 10% of body weight at age 25 yrs) • Rheumatoid arthritis • Other disorders strongly associated with osteoporosis (see risk factors)
*At least 3 months cumulative therapy in the previous year at a prednisone-equivalent dose ≥ 7.5 mg daily †For example, aromatase inhibitors or androgen deprivation therapy

Table adapted from Papaionnou et al., 2010

(Papaionnou et al., 2010)



Understanding T-scores and Z-scores

T-scores indicate standard deviation (SD) below the young-adult mean BMD	
STATUS	T-score
Normal	+2.5 to -1.0, inclusive
Osteopenia	Between -1.0 and -2.5
Osteoporosis	≥ -2.5
Severe Osteoporosis	≥ -2.5 + fragility fracture
Z-score is a comparison of the patients BMD to an age-matched population	
Z score ≥ -2 identifies patients who require work-up for secondary causes of Osteoporosis	

Table adapted from Puxty et al., 2008

(Puxty et al., 2008)



Special Considerations for Older Adults with Rheumatoid Arthritis (RA)

- Osteoporosis is a common co-morbidity of RA.
- The frequency of osteoporosis in those with RA is estimated to be around 50%. (Wegierska, 2016)
- People with RA are more likely than others their age to suffer osteoporotic fractures of **VERTEBRAL BODIES** which can make it difficult to obtain a correct assessment in the **DXA** test.
- Another challenge is that degenerative lesions can cause BMD increase in those areas to occur resulting in an underestimation of fracture risk.
- **PERIARTICULAR OSTEOPOROSIS** is a common feature early in Rheumatoid Arthritis (RA).
- Glucocorticoid therapy also put these older adults at greater risk of secondary osteoporosis.

[\(Wegierska et al., 2016\)](#)