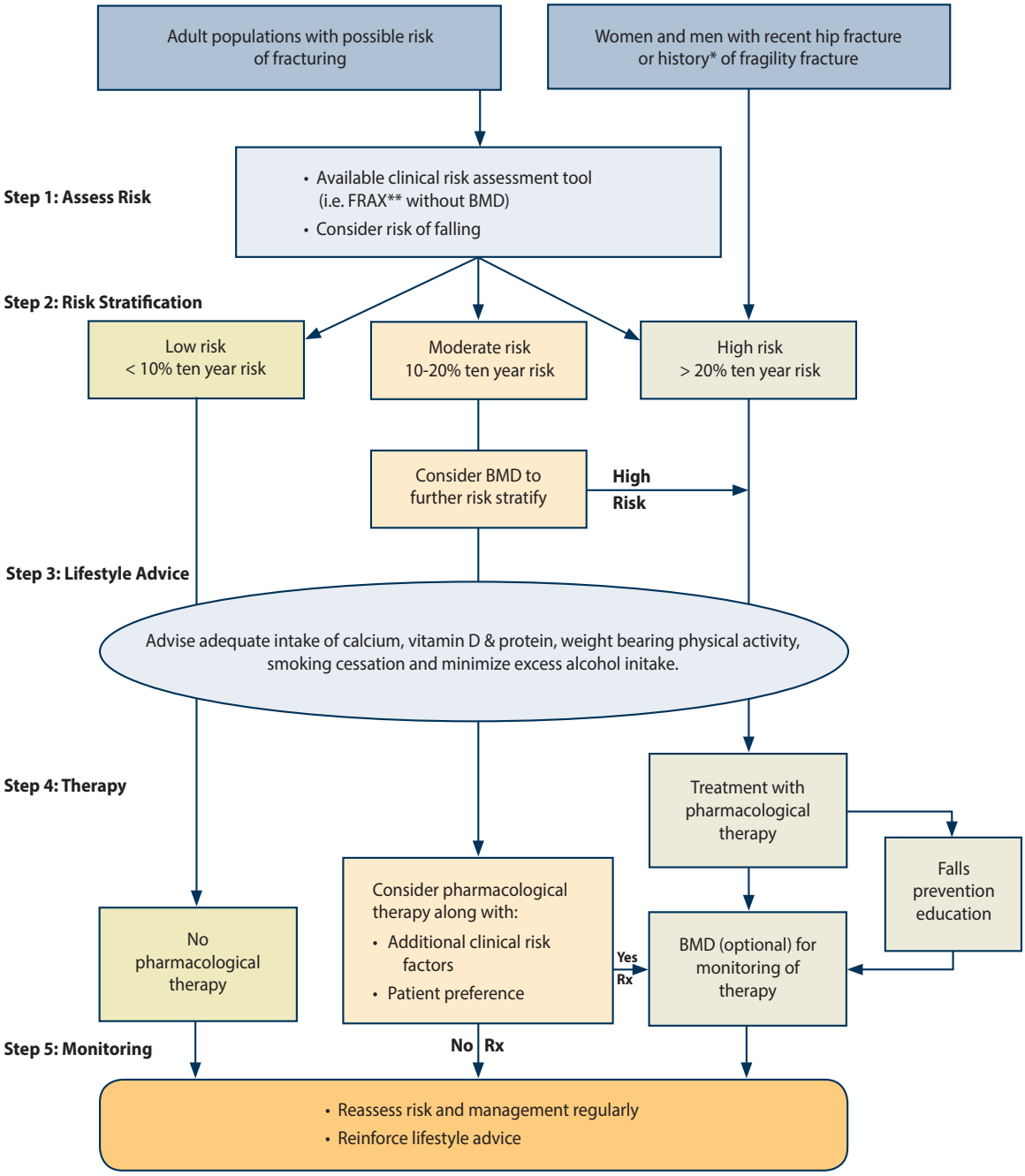
Osteoporosis: Diagnosis, Treatment and Fracture Prevention
Summary of Guideline

Effective Date: May 1, 2012
Revised: October 1, 2012

For full guideline, please go to website: www.BCGuidelines.ca

Algorithm 1: Recommendations for evaluation and management of osteoporotic and fragility fracture risk



** Review available lateral thoracolumbar x-ray for evidence of fragility fracture*

*** FRAX not applicable at < 40 years*

Details on Osteoporosis (OP) Diagnosis, Treatment and Fracture Prevention

Step 1.1: Assessing the risk of developing OP

- ***Family history:*** Parental history of hip fracture
- ***Medical history:*** Advanced age; frailty; hyperthyroidism; hyperparathyroidism; celiac and other malabsorption syndromes; BMI < 20 kg/m^2 or weight loss; long-term glucocorticoids, e.g., > 3 months of prednisone ≥ 7.5 mg OD; rheumatoid arthritis; or chronic liver or kidney disease
- ***Gender risks:*** For men, androgen deficiency (primary or secondary); for women, estrogen deficiency, menopause age < 45 years, or cessation of menstruation for 6-12 consecutive months (excluding pregnancy, menopause or hysterectomy)
- ***Lifestyle:*** Smoking (current or former), daily alcohol > 3 units, caffeine > 4 cups/day, inadequate calcium / vitamin D intake, lack of sunlight, prolonged immobility / lack of weight-bearing exercise

Step 1b: Assessing the risk of falls and fracturing within 10 years

- Previous fragility fracture (e.g., hip, vertebra, humerus, wrist) or fall in the past year
- High risk of falling, e.g., physical frailty or significant weight loss; poor strength, balance, gait, vision

Step 2: Risk Stratification

Determine fracture risk	Via risk factors and a clinical assessment tool (CAROC from the Canadian Association of Radiologists and Osteoporosis Canada or FRAX® from WHO (www.shef.ac.uk/FRAX))
Classify fracture risk next 10 years	Low (< 10%), Moderate (10-20%), or High (> 20%)
BMD indications	Age > 65 years, moderate fracture risk, results likely to alter patient care
BMD NOT indicated	Investigation of chronic back pain or dorsal kyphosis, screening women < 65 years without significant clinical risk factors, or confirmation of OP when a fragility fracture occurs
Lab testing	Not routinely recommended, including bone turnover markers and vitamin D levels

Step 3: Lifestyle Advice

- Adequate protein (1g/kg/day) plus calcium (1000-1200 mg/day including supplements) plus, for age > 50, vitamin D (800-1000 IU D3/day including supplements)
- Weight-bearing and muscle-strengthening exercise, smoking cessation, alcohol max of 3 units/day

Step 4: Therapy (falls prevention and pharmacological therapy)

- Falls prevention is the first line of treatment (versus OP medications) for those at high risk for falling
- All patients are advised to receive lifestyle advice and adequate daily intake of calcium and vitamin D
- Drug therapy may be considered for those at high risk and occasionally for those at moderate risk[1]:
  - Consider medication after implementing fall prevention strategies and providing lifestyle advice.
  - Medication adherence (compliance and persistence) is required for fracture reduction, yet rates of adherence to OP treatments are low.
  - Available in Canada (alphabetically): alendronate, calcitonin, denosumab, estrogens (with or without progesterone), etidronate, raloxifene, risedronate, teriparatide, and zoledronic acid.
  - Data are insufficient to determine if one drug class is superior to another for fracture prevention.
  - For more detail on specific OP medications, see the full guideline.

Step 5: Monitoring

- Clinical assessment prn to check side effects, compliance, incident fractures, and risk of falls
- BMD:
  - *Patients not on OP meds:* Consider measuring BMD q 3-10 years, depending on risk profile.
  - *Patients on OP meds:* No sooner than q 3 years except specific high risk situations, e.g., multiple risk factors (> 3 months of ≥ 7.5 mg prednisone OD [or equivalent] requires q 6 month testing).
  - *Stable BMD on meds:* May reflect successful treatment because women > 65 usually lose bone.
  - *Follow-up BMD:* Ideally employs the same DXA machine at the same time of year.

[1]For those at moderate risk, additional risk factors include: vertebral fractures (> 25% height loss with end-plate disruption); lumbar spine BMD T-score significantly worse than hip BMD T-score; men receiving androgen deprivation therapy for prostate cancer; women receiving aromatase inhibitor therapy for breast cancer; long-term or repeated systemic corticosteroid use (oral or parenteral) that does not meet the conventional criteria for recent prolonged systemic corticosteroid use (i.e., ≥ 3 months (consecutive) therapy at a dose of prednisone ≥ 7.5 mg per day or equivalent; and recurrent falls.