

# Diagnosing osteoporosis:

assessing fracture risk

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# Risk assessment categories – NICE guidelines

- All women aged 65 or over
- All men aged 75 or over
- In men aged 50 -74 and women 50 -64 in presence of risk factors, for example:
  - previous fragility fracture
  - current use or frequent use oral glucocorticoids
  - history of falls
  - family history of hip fracture
  - other causes secondary osteoporosis
  - BMI <18.5
  - smoking
  - alcohol >14 units/week for women and >21 units/week for men

- Do not routinely assess fracture risk in under 50s unless they have major risk factors...
  - Previous fracture
  - Steroids
  - Untreated premature menopause
  - Oral /systemic steroid use
  - Low BMI
  - Hazardous alcohol intake
  - History of falls
  - Causes secondary osteoporosis

# Causes secondary osteoporosis

- Endocrine
  - Hypogonadism in either sex including untreated premature menopause and treatment with aromatase inhibitors or androgen deprivation therapy;
  - Hyperthyroidism;
  - Hyperparathyroidism;
  - Hyperprolactinaemia;
  - Cushing's disease;
  - Diabetes

- Gastrointestinal
  - Coeliac disease;
  - Inflammatory bowel disease;
  - Chronic liver disease;
  - Chronic pancreatitis;
  - Other causes of malabsorption ,
- Haematological
  - Multiple myeloma;
  - Haemoglobinopathies;
  - Systemic mastocytosis

- Rheumatological
  - Rheumatoid arthritis;
  - Other inflammatory arthropathies
- Respiratory
  - Cystic Fibrosis;
  - Chronic obstructive pulmonary disease
- metabolic
  - Homocystinuria

- Chronic renal disease

- Immobility

(due for example to neurological injury or disease e.g MS/Stroke/Parkinsons)

# SIGN Guidelines

- Also include at risk groups:
  - >50 on long term antidepressants (SSRI especially)
  - >50 on Antiepileptics
  - Women > 50 on Aromatase inhibitors (eg Anastrozole)
  - Long term (2 years) DMPA (reversible)
  - GnRH agonists (in men >50yrs with prostate cancer)
  - PPIs in those > 50 yrs (warn patient of risks)
  - >50 yrs and on Pioglitazone.

[Sign 2015 Osteoporosis quick reference guide](#)

# Risk assessment tools

- Estimate absolute risk when assessing risk of fracture (for example, the predicted risk of major osteoporotic or hip fracture over 10 years, expressed as a percentage)
- Can use FRAX or Qfracture to assess risk
- SIGN recommend [Qfracture](#) – advantages over FRAX
  - extensive validation over UK populations, wider age range 30-99, - -different ethnic groups, more accurate prediction in specific groups such as elderly, can calculate over 1-10 years.

- FRAX – can calculate with BMD (DEXA result incorporated)  
Age limit 40-90 years
- [FRAX calculation tool](#)

- Interpret the estimated absolute risk of fracture in people aged over 80 years with caution, because predicted 10-year fracture risk may underestimate their short-term fracture risk
- Following risk assessment with FRAX (without a BMD value) or QFracture, consider measuring BMD with DXA in people whose fracture risk is in the region of an intervention threshold for a proposed treatment, and recalculate absolute risk using FRAX with the BMD value

## SIGN guidelines recommend

- Consider recalculating fracture risk in the future:
  - if the original calculated risk was in the region of the intervention threshold for a proposed treatment and only after a minimum of 2 years, or
  - when there has been a change in the person's risk factors

## Use risk tools with caution

- Risk assessment tools may underestimate fracture risk in certain circumstances e.g. if a person
  - has a history of multiple fractures
  - has had previous vertebral fracture(s)
  - has a high alcohol intake
  - is taking high-dose oral or high-dose systemic glucocorticoids (more than 7.5 mg prednisolone or equivalent per day for 3 months or longer)
  - has other causes of secondary osteoporosis

- Consider that fracture risk can be affected by factors that may not be included in the risk tool,
  - for example living in a care home or taking drugs that may impair bone metabolism (such as anti-convulsants, selective serotonin reuptake inhibitors, thiazolidinediones, proton pump inhibitors and anti-retroviral drugs)

## Who to treat

- SIGN recommend DEXA in all before starting treatment otherwise risk over treating but use tool to assess who needs DEXA.
- Threshold for SIGN > 10 % fracture risk as trials show that treatment significantly reduces fracture risk at this threshold.

- NICE recommends that postmenopausal women aged >75 years with 2 or more risk factors should be treated without DEXA scanning.

# References

- [SIGN March 2015 Osteoporosis Guideline](#)
- [NICE guidelines 2012 -assessing risk of fragility fracture](#)