**Management of osteoporosis and the prevention of fragility fractures**

**Quick reference guide**

First published March 2015
Revised June 2020
Revised January 2021

This Quick Reference Guide provides a summary of the main recommendations in SIGN 142

**Management of osteoporosis and the prevention of fragility fractures**

**Treatment options** should be discussed with the patient and their views and preferences taken into account.

This should include a discussion of the risks of fracture with and without treatment, using tools such as QFracture and FRAX, the risks and benefits of treatment and the option not to have drug treatment.

### Risk factors

#### Non-modifiable risk factors
- Previous fracture
- Parental history of osteoporosis
- History of early menopause (below age of 45)

#### Modifiable risk factors
- Low BMI (<20 kg/m²)
- Smoking
- Low bone mineral density
- Alcohol intake

### Coexisting diseases

#### Non-modifiable risk factors
- Inflammatory rheumatic diseases (RA or SLE)
- Inflammatory bowel disease and malabsorption
- Institutionalised patients with polypharmacy
- Human immunodeficiency virus
- Primary hyperparathyroidism and endocrine disorders
- Chronic liver disease
- Neurological diseases (including Alzheimer’s disease, Parkinson’s disease, multiple sclerosis, stroke)
- Moderate to severe chronic kidney disease

#### Modifiable risk factors
- Asthma

### Drug therapy

#### Non-modifiable risk factors
- Long-term antidepressants
- Antiepileptics
- Aromatase inhibitors
- Long-term DMPA
- GnRH agonists (in men with prostate cancer)

#### Modifiable risk factors
- PPIs
- Oral glucocorticoids
- TZDs

### Recommendations associated with modifiable risk factors for fragility fractures

<table>
<thead>
<tr>
<th>Risk category</th>
<th>Affected group</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcohol</td>
<td>People who consume more than 3.5 units per day of alcohol</td>
<td>Reduce alcohol intake to nationally recommended levels (&lt;14 units per week)</td>
</tr>
<tr>
<td>Smoking</td>
<td>All smokers</td>
<td>Stop smoking</td>
</tr>
<tr>
<td>Weight</td>
<td>People with low BMI (&lt;20 kg/m²)</td>
<td>Achieve and maintain a BMI level of 20–25 kg/m²</td>
</tr>
</tbody>
</table>

### Sources of further information

**Royal Osteoporosis Society**
Camerton, Bath, BA2 0PJ
Helpline: 0808 800 0035
Helpline email: nurses@theros.org.uk
www.theros.org.uk

The Royal Osteoporosis Society is a UK charity dedicated to improving the diagnosis, prevention and treatment of osteoporosis. It runs a dedicated helpline (by phone, email and post) on weekdays between 9am and 5pm to answer medical queries relating to osteoporosis. The website provides a large volume of information and advice on living with the condition, current news and support groups.

**Age Scotland**
Causewayside House, 160 Causewayside, Edinburgh, EH3 1PR
Helpline: 0800 12 44 222
www.ageuk.org.uk/scotland
Email: helpline@agescotland.org.uk

Age Scotland is a charity which represents all older people in Scotland. It campaigns, commissions research and fundraisers to support a better quality of life for everyone in later life. Age Scotland provides a wide range of confidential, impartial and simple information and promotes healthy living and active ageing. It also helps people to claim their entitlements and provides access to financial services targeted towards older people.

**NHS Inform**
www.nhsinform.scot
Tel: 0800 22 44 88

This is the national health and care information service for Scotland. It includes information and links to resources to support people with osteoporosis: www.nhsinform.scot/illnesses-and-conditions/muscle-bone-and-joints/conditions/osteoporosis

This Quick Reference Guide is also available as part of the SIGN Guidelines app.

Details of the evidence supporting these recommendations can be found in the full guideline, available on the SIGN website: www.sign.ac.uk
Pathway from risk factors to pharmacological treatment selection postmenopausal women

Secondary fracture prevention
- Fragility Fracture age ≥ 50
  - Hip Fracture
  - Other Fracture
  - Spine Fracture
    - DXA scan
      - Yes
      - DXA scan
        - Yes
          - Severe osteoporosis Spine?‡
            - Yes
              - Alendronate
            - No
              - Zoledronic acid
                - 18 monthly
                  - Yes
                    - Continue for 6 years and review (section 6.4.3)
                  - No
                    - Parenteral bisphosphonate appropriate?
                      - Yes
                        - Zoledronic acid annually
                      - No
                        - Denosumab
                          - Yes
                            - Transition to bisphosphonates
                          - No
                            - Denosumab
                              - Yes
                                - Give 3 infusions and review after 5 years (section 6.5)
                              - No
                                - Denosumab

Primary fracture prevention
- Clinical risk factors age ≥ 50
  - Very strong clinical risk factors age < 50
    - Fracture risk assessment
      - Yes
        - 10-year risk ≥ 20%?
          - Yes
            - Lifestyle advice Reassess if risk profile changes
          - No
            - Fracture risk assessment
              - Yes
                - DXA scan§
                  - Yes
                    - Normal T > -1.0
                      - Yes
                        - Zoledronic acid
                          - 18 monthly
                            - No
                            - Give 3 infusions and review after 5 years (section 6.5)
                          - Continue for 6 years and review (section 6.4.3)
                          - Parenteral bisphosphonate appropriate?
                            - Yes
                              - Denosumab
                            - No
                              - Denosumab
                                - Yes
                                  - Transition to bisphosphonates
                                - No
                                  - Denosumab
        - No
          - 10-year risk < 20%?
            - Lifestyle advice Reassess if risk profile changes

Pharmacological treatment options for men

Tools for detection and assessment
- Risedronate may be considered for the treatment of osteoporosis in men.
- Zoledronic acid should be considered for the treatment of osteoporosis in men and the prevention of vertebral fractures.

5 DXA scan advisable to obtain baseline BMD but not necessary to initiate treatment; § One severe or two or more moderate vertebral fractures on x-ray, and T-score <-1.5 at any site or spine T score <-4.0