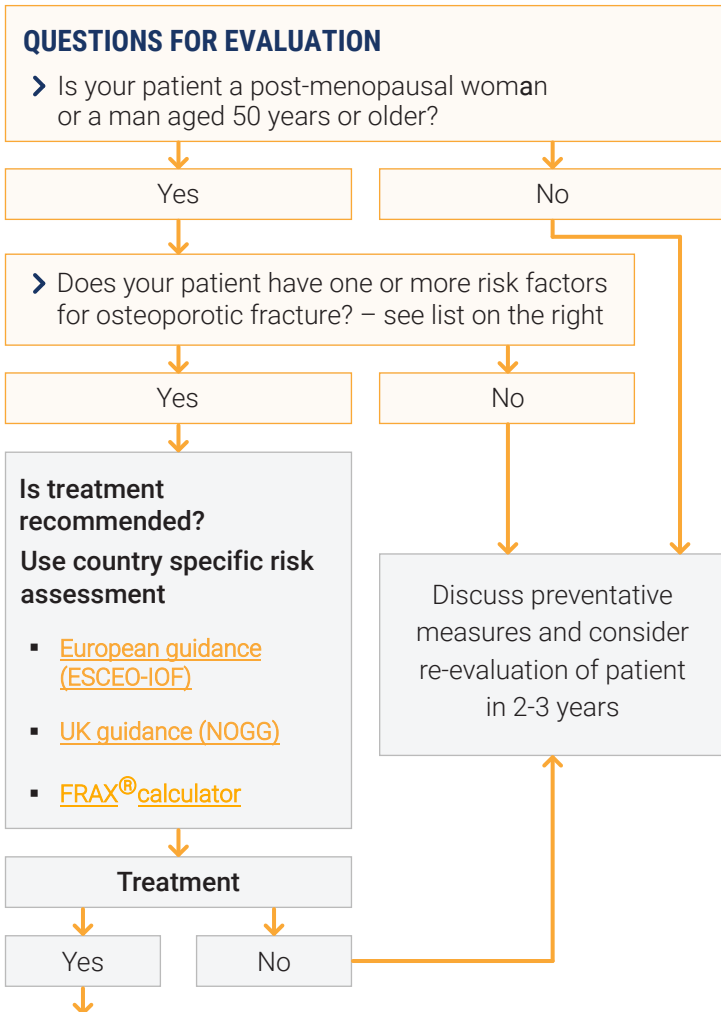


UK version



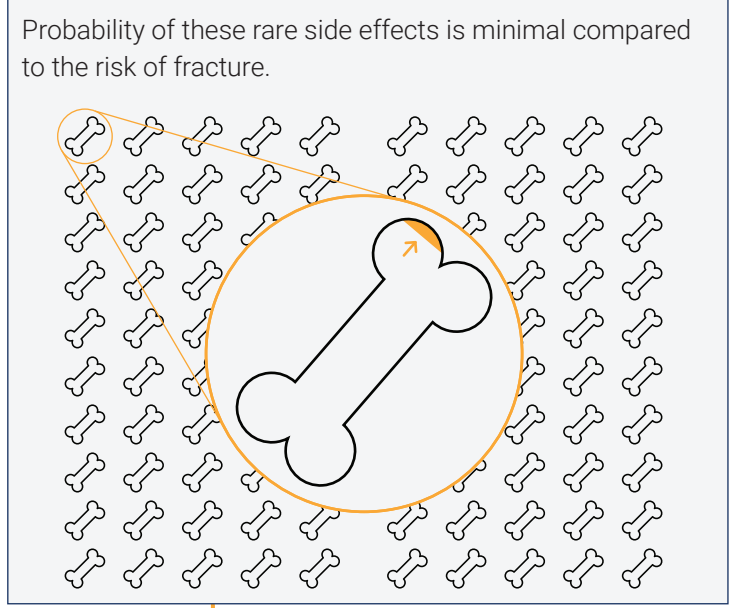
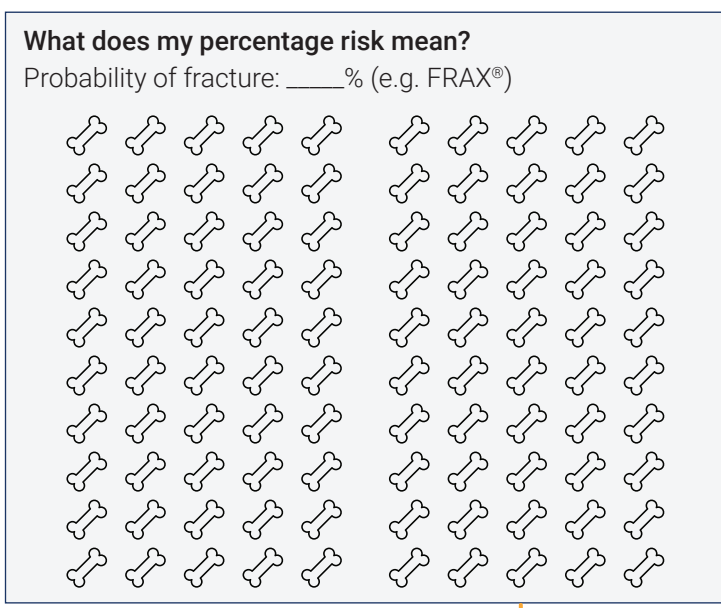
- KNOWN RISK FACTORS FOR OSTEOPOROSIS & FRACTURES**
- Parental history of osteoporosis and fractures (especially hip fractures)
  - Previous fracture over the age of 50
  - Loss of height as an adult (>4 cm or 1.5 in)
  - Rheumatoid arthritis and other autoimmune inflammatory diseases
  - Hyperthyroidism and hyperparathyroidism
  - Diabetes
  - Hypogonadal states
    - Oestrogen deficiency and amenorrhea (other than pregnancy)
    - Early natural or surgical menopause (age 45 or less)
    - Low testosterone in men
  - Digestive and gastrointestinal diseases (including malabsorption, lactose intolerance)
  - Cancer (especially prostate and breast)
  - High risk medications, including:
    - Androgen deprivation therapy
    - Aromatase inhibitors
    - Glucocorticoids (prednisolone and others)
    - Proton Pump inhibitors
    - Seizure medications
    - Thiazolidinediones
  - Lifestyle factors (falls, smoking, excessive alcohol intake, immobility)

**Discuss benefits versus risks of treatment**

Discuss specific anti-osteoporosis medications, calcium and vitamin D supplementation, as well as future care

**Risk of rare side effects with anti-resorptives**

Probability of osteonecrosis of the jaw: 0.001%<sup>1</sup>  
Probability of atypical femur fractures: 0.001%<sup>2</sup>



**Final shared treatment decision** between patient and physician

Refer to country-specific guidelines for treatment options

UK version

## KEY MESSAGES IN BENEFIT VERSUS RISK DISCUSSION

- Fractures are serious and impact health as well as survival. In addition, serious side effects from medications are very rare.
- The serious health consequences of fractures should be considered, including pain, reduced mobility, complications such as infection, cardiovascular events, thromboembolic disease and death, together with reduced quality of life and wellbeing.
- Available medications may differ by country; the benefits/side effects also differ and should be explained (see panel), without losing sight of severe consequences of fractures.
- Drug summary of product characteristics list all side effects, but do not mention how rare many of these are.
- Patients may have major concerns with regard to a particular side effect – the reasons for this should be explored and reassurance provided if appropriate.
- For each atypical femoral fracture potentially caused, 50 osteoporotic fractures may be prevented<sup>3</sup>.
- Osteoporosis is a long-term (chronic) condition, just like diabetes or high blood pressure. It therefore needs lifelong attention to minimise fracture risk.

## COMMON SIDE EFFECTS

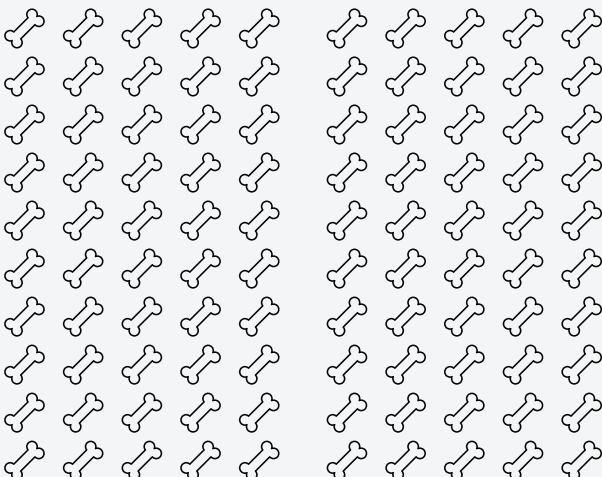
- **Bisphosphonates**
  - By enteral route: mild gastro-intestinal disturbances
  - By IV: flu-like symptoms - acute and transient bone and muscle pain, as well as fever
- **SERM**
  - Leg cramps and hot flushes

## INFREQUENT SIDE EFFECTS

- **SERM**
  - Deep venous thromboembolism
- **Denosumab**
  - Skin rashes and infections
  - Hypocalcemia
- **Anabolics**
  - PTH and PTHrP analogs
    - Hypercalcemia
    - Nausea
    - Dizziness and headache
    - Hypercalciuria
  - Romosozumab
    - Rare cardiovascular events

## RELATIVE RISK REDUCTION IN FRACTURE WITH ANTI-RESORPTIVE TREATMENT

Spine:	60%
Hip:	40%
Non-spine:	25%



## CONSEQUENCES OF FRACTURE

- **Overall decrease in quality of life including:**
  - Pain
  - Loss of independence
  - Immobility
  - Premature death
- **Huge impact not just on the patient, but also on carers, family and friends**

## NOTES ON USE OF THIS TOOL

- This tool is intended to aid clinicians in communicating with patients about risk assessment and prevention of osteoporotic fractures.
- Note that the bone infographics can be shaded to represent key statistics, e.g. risk of fracture, risk of side effects, proportion of fractures prevented.

### References:

1. Khan, J Bone Miner Res. 2015. 30(1).
2. Dell, J Bone Miner Res. 2012. 27(12).
3. Adler, J Bone Miner Res. 2016. 31(1)