

# Bisphosphonates for treating osteoporosis

## Patient decision aid: user guide and data sources

### ***Background***

NICE [technology appraisal guidance 464](#) recommends that the choice of treatment with a bisphosphonate should be made on an individual basis after discussion between the responsible clinician and the patient, or their carers, about the advantages and disadvantages of the treatments available. The NICE decision aid can help support that discussion.

### ***Developing and updating the decision aid***

The decision aid was developed by the NICE Medicines and Technologies Programme in association with the technology appraisal committee. It was also reviewed by the Royal Osteoporosis Society.

NICE decision aids are reviewed as part of the surveillance process for the guidance to which they relate. If the guidance and the relevant recommendations are modified, the decision aid will also be updated.

### ***Sources of data***

#### **Effects of bisphosphonates on risk of fracture**

The technology appraisal guidance refers to the person's 10-year probability of osteoporotic fragility fracture. This is total osteoporotic fracture: 'clinical spine, forearm, hip or shoulder fracture' in [FRAX](#) or 'any osteoporotic (hip, wrist, shoulder or spine) fracture' in [Qfracture](#). However, the technology appraisal guidance assessment of clinical effectiveness found that bisphosphonates have a statistically significant effect on the risk of hip and vertebral fracture, but no statistically significant effect on wrist or proximal humerus fracture ([paragraph 3.10](#)). Thus the average effects of bisphosphonates on the risk of selected, illustrative hip fracture and vertebral fracture are shown in the decision aid.

Although both FRAX and Qfracture estimate a person's 10-year risk of hip fracture, neither of them estimate vertebral fracture risk: clinical judgement will therefore be

needed to select the icon array closest to the person's likely risk of vertebral fractures.

The technology appraisal guidance assessment provided hazard ratios from a network meta-analysis and so these are used as though they were relative risks; possible inaccuracy from this is likely to be small compared to the wide 95% credible intervals (analogous to 95% confidence intervals) associated with the hazard ratios. It was also assumed that the risk reduction is constant over time (the proportional hazards assumption) and that the benefit continues after treatment stops, in line with recommendations in the NICE guideline on [multimorbidity](#).

### **Duration of treatment with bisphosphonates**

The recommended duration of bisphosphonate treatment was not assessed in the technology appraisal guidance but the NICE guideline on [multimorbidity](#) (recommendation 1.6.16) states:

Tell a person who has been taking a bisphosphonate for osteoporosis for at least 3 years that there is no consistent evidence of:

- further benefit from continuing bisphosphonate for another 3 years
- harms from stopping bisphosphonate after 3 years of treatment.

Discuss stopping bisphosphonate after 3 years and include patient choice, fracture risk and life expectancy in the discussion.

### **Adverse effects**

Information on adverse effects of bisphosphonates was taken from the manufacturers' summaries of product characteristics (SPCs).