# *Quick Reference Guide for the Management of Osteoporosis*

This guideline draws from recommendations provided by the following organisations:

- National Osteoporosis Guideline Group (NOGG) - National Osteoporosis Guidelines Group UK (nogg.org.uk)
- Scottish Intercollegiate Guidelines Network (SIGN) - Management of osteoporosis and the prevention of fragility fractures (sign.ac.uk)
- National Institute for Health and Care Excellence (NICE) - Scenario: Management | Management | Osteoporosis - prevention of fragility fractures | CKS | NICE Osteoporosis | Treatment summaries | BNF | NICE
- Royal Osteoporosis Society (ROS) - Royal Osteoporosis Society - Better Bone Health for Everybody (theros.org.uk)
- Kidney Disease Improving Global Outcomes (KDIGO) - KDIGO 2017 Clinical Practice Guideline Update for the Diagnosis, Evaluation, Prevention, and Treatment of Chronic Kidney Disease–Mineral and Bone Disorder (CKD-MBD)

Health care professionals have an individual responsibility to make decisions appropriate to the circumstances of each individual patient in partnership with the patient and/or guardian or carer. This guideline is not exhaustive and does not override that responsibility.

Other useful health board resources for osteoporosis:

- Pharmacological Management of Vitamin D Deficiency in Adults
- Denosumab (Prolia) Shared Care Protocol
- DXA Request Form

# Risk Assessing Patients for Osteoporosis

Consider performing a FRAX assessment in any postmenopausal woman, or man age ≥50 years, with a clinical risk factor for fragility fracture, **always assess osteoporosis risk in patients with suspected fragility fractures.**

**Common Risk Factors for Secondary Osteoporosis**

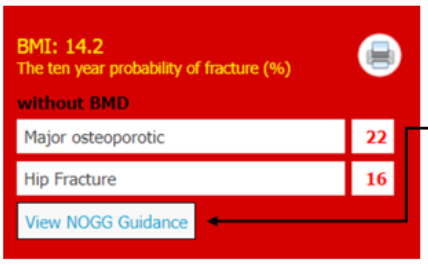
T1DM, osteogenesis imperfecta, hyperthyroidism, hypogonadism, premature menopause (<45), chronic malnutrition/malabsorption, chronic liver disease, steroid therapy, androgen/aromatase inhibitors, rheumatoid disease, COPD

**Information Required for FRAX**

Age, DOB, Sex, Weight, Height, fracture history including history of maternal/paternal hip fracture, smoking status, recently/currently taking oral steroids, if diagnosed with rheumatoid arthritis, risk factors for secondary osteoporosis and alcohol intake

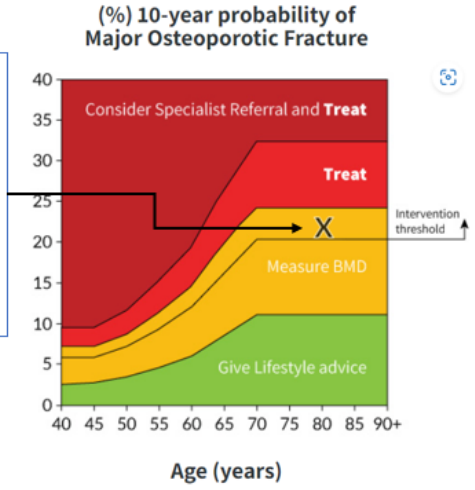
**FRAX assessments can be performed using the following calculator**: FRAX Calculator

**Interpreting FRAX results:**




After you have calculated the FRAX score, click "View NOGG Guidance" (If you can't see this click box, then ensure your country is set to United Kingdom).

You will then see the graph on the right. The suggested intervention for the patient will depend on where the cross "X" lies on the graph. A guide of the suggested interventions is listed below.




**Give lifestyle advice**: Encourage the patient to maintain a balanced diet with an adequate intake of calcium, review whether the patient requires vitamin D supplementation. Suggest weight-bearing and muscle strengthening exercise if appropriate and encourage smoking cessation and alcohol intake < 2units a day. Consider a falls assessment if the patient is having frequent falls or is at risk of falling.

**Measure BMD**: Consider all of the above and ensure that the patient is referred for a bone mineral density scan (DEXA). DEXA request form

***Intervention threshold: If the cross "X" lies above this line, consider starting treatment as well as all the above.**

**Treat:** Consider all of the above and commence treatment if appropriate.

**Consider Specialist Referral and Treat:** As well as considering all of the above, refer the patient to the osteoporosis service if the patient is not already known to them.

**Summary of Antiresorptive Treatment Options:**

| Drug | Dosage | Renal Parameters (ml/min) | Monitoring |
|---|---|---|---|
| Alendronic acid[1] | 70mg weekly oral | CrCl >35 | Consider a minimum vitamin D level >50 nmol/L before commencing treatment (load if necessary).<br><br>Ensure adequate serum calcium levels before initiating treatment. |
| Risedronate Sodium | 35mg weekly oral | CrCl >30 | |
| Ibandronate | 150mg monthly oral | CrCl >30 | |
| Zoledronic acid | 5mg yearly IV | CrCl >35 | |
| Denosumab (Prolia) | 60mg 6-monthly SC | CrCl >30* | |

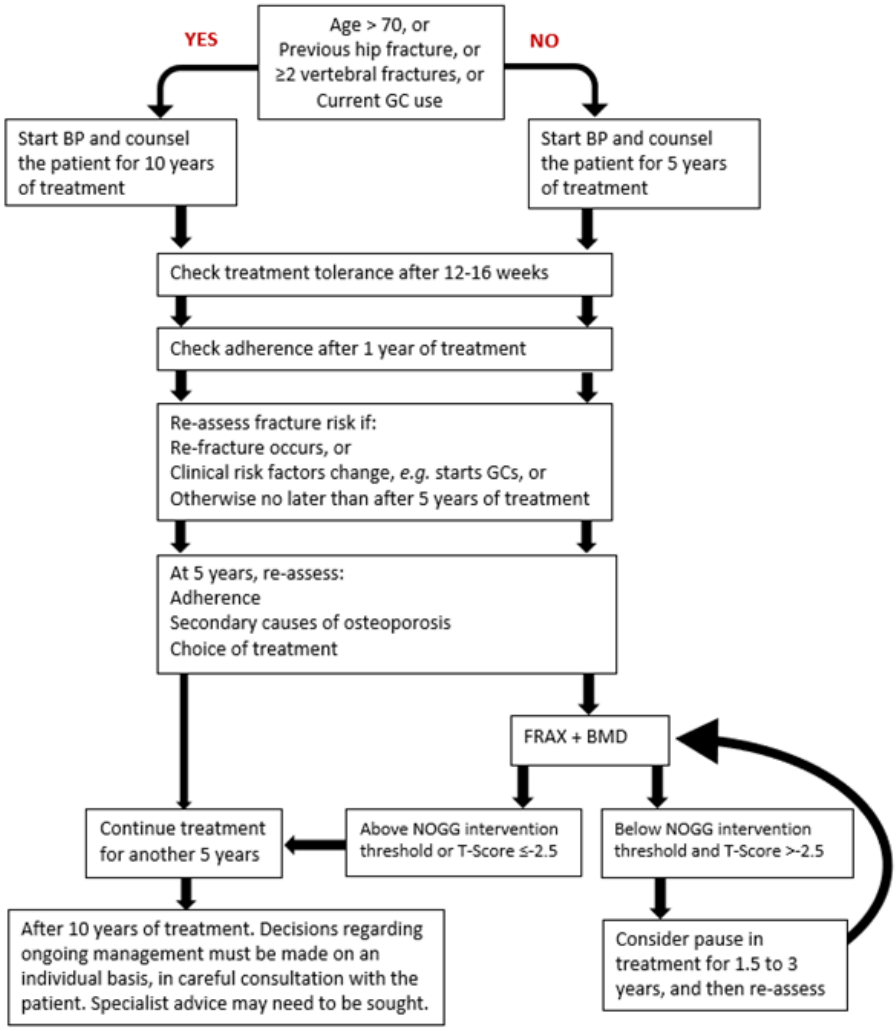
***Do not routinely initiate patients on denosumab if CrCl <30 ml/min due to increased risk of hypocalcaemia**, interruption of denosumab treatment can lead to rebound osteoporosis, ensure the patients practice supports shared care prescribing before initiating treatment if prescribing is to be transferred to the patients GP.

[1]Effervescent tablets (Binosto) can be offered to those experiencing gastrointestinal upset with alendronate tablets.

**Further considerations:**

Bisphosphonates and denosumab carry a risk of osteonecrosis of the jaw. Ensure patients are registered with a dentist and have regular dental checkups before commencing treatment. If patient has any active or planned dental work, consider delaying treatment until this is completed. Bisphosphonates and denosumab can also rarely cause atypical femoral fractures, counsel patients to report any unexplained thigh, groin or hip pain.

Patients should have at least one DEXA scan within 5 years of commencing treatment and should not routinely remain on **bisphosphonate treatment for a period longer than 10 years**. The algorithm below obtained from NOGG can be used to guide oral treatment duration:



# Vitamin D and Calcium Supplementation

Below is a summarised version of the following health board guideline "Pharmacological Management of Vitamin D Deficiency in Adults", consider accessing the full guideline for a more comprehensive overview.

## Who to Treat

When deciding whether or not to treat a patient with vitamin D, first consider checking the level and following the below thresholds:

**Serum 25OHD < 25 nmol/L is classed as deficient**. Treatment is recommended.

**Serum 25OHD of 25–50 nmol/L may be inadequate in some people**. Treatment is advised in patients with the following:

- Fragility fracture, documented osteoporosis or high fracture risk
- Treatment with anti-resorptive medication for bone disease
- Symptoms suggestive of vitamin D deficiency
- Increased risk of developing vitamin D deficiency in the future because of reduced exposure to sunlight (religious/cultural dress code, dark skin, bedbound patients)
- Raised parathyroid hormone (careful interpretation and monitoring required)
- Active treatment with drugs that increase risk of osteoporosis such as antiepileptics and oral glucocorticoids
- Conditions associated with malabsorption

**Serum 25OHD > 50 nmol/L is sufficient for almost the whole population**. Provide reassurance and give advice on maintaining adequate vitamin D levels through safe sunlight exposure and diet.

## Vitamin D Treatment

Vitamin D deficient patients can be loaded before maintenance treatment is prescribed.

Consider rapidly loading vitamin D deficient patients if imminent osteoporosis treatment is planned or if there is evidence of symptomatic disease (Stexerol-D3 25,000-unit tablets can be used to load patients). If adjusted serum calcium is ≥2.5mmol/L and vitamin D loading is indicated, consider using a slower loading regime whilst checking calcium levels one week after commencing the loading regime and four to six weeks after the regime has concluded.

**Slow Loading Regime**

- 50,000 units orally, once a week for six weeks
- Commence maintenance therapy thereafter

**Rapid Loading Regime (only recommended for inpatients)**

- 50,000 units daily for five days
- Commence maintenance therapy thereafter

Consider maintenance vitamin D treatment (e.g. Strivit-D3 800 units daily) in patients with normal calcium levels who do not require rapid correction of vitamin D levels or after loading therapy has been completed. **Consider avoiding combined calcium/vitamin D supplements** unless a patient has a dietary need for additional calcium. The following calculator can be used to estimate daily intake of calcium: CGEM Calcium Calculator (ed.ac.uk).

## Chronic Kidney disease

Do not routinely prescribe vitamin D analogues unless CrCl ≤29ml/min AND there is severe and progressive hyperparathyroidism, otherwise use cholecalciferol. Initiation of vitamin D analogues should be discussed with a nephrologist due to risk of hypercalcaemia. Further information about the management of mineral and bone disorders in chronic kidney disease can be found in the following KDIGO guideline.