

PATIENT PRESENTATION

Patient is suspected to have osteoporosis or is identified as having a higher risk of developing osteoporosis.

INDICATIONS FOR IMMEDIATE TREATMENT

Has the patient one of the following?:

- New low trauma spinal fracture
- Starting long term steroids when > 65 years of age (≥ 2.5mg of Prednisolone [or equivalent] for ≥ 3 months)

Yes →

START TREATMENT BEFORE DEXA (DXA) SCAN

Consider commencing patient on oral bisphosphonate therapy.
Consider Calcium and Vitamin D supplementation as detailed on [page 2](#).
See [page 2](#) for further management.

No

INDICATIONS FOR DEXA (DXA) SCAN

Does the patient fit **any** of the following criteria?:

- Low trauma fracture
- Any risk factor for osteoporosis and [FRAX](#) score ≥ 10%
- On long term steroids (≥ 2.5mg of Prednisolone [or equivalent] for ≥ 3 months)
- Rescan at time interval suggested by DXA service
- Low trauma fracture ≥ 2 years after last DXA scan

Yes →

REFER

Consider referring patient for DXA scan (dual-energy x-ray absorptiometry).
See [page 2](#) for further management.

No

DEXA NOT ROUTINELY INDICATED

If patient does not fit any of the above criteria then they would not routinely require a DXA (dual-energy absorptiometry) scan to assess for osteoporosis.
If there are other reasons that would indicate the need to assess for osteoporosis, please refer to Rheumatology for individual consideration.

List of risk factors

RISK FACTORS FOR OSTEOPOROSIS

Conditions

- Rheumatoid Arthritis
- Systemic Lupus Erythematosus (SLE)
- Inflammatory Bowel Disease
- Coeliac disease
- Cystic Fibrosis
- Chronic Liver Disease
- Hyperparathyroidism, Hyperthyroidism
- Hyperprolactinaemia or Hypogonadism
- Human Immunodeficiency virus (HIV)
- Organ transplantation
- Parkinsonism, Multiple Sclerosis, Stroke

- Alzheimer's or dementia
- Previous low trauma fracture
- Low BMI <20kg/m²
- Alcohol excess
- Parental history of hip fracture
- Chronic kidney disease
- Asthma
- Institutionalised patients with epilepsy
- Diabetes
- Early Menopause (<45 years old)

Medications

- Steroids
- Aromatase inhibitors
- GnRH inhibitors (men with prostate cancer)
- Anti-androgen therapies
- Antipsychotics
- Long-term depomedroxyprogesterone
- Long-term antidepressants
- Proton pump inhibitors
- Thiazolidinedione ('glitazones')

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DEXA SCAN RESULT

Follow advice as per DXA scan report for osteoporosis or non-osteoporosis diagnosis.

DIAGNOSIS OF OSTEOPOROSIS

If directed by DXA scan result, please exclude the secondary causes of osteoporosis as below:

- Endocrine (untreated premature menopause, hypogonadism, diabetes mellitus, hyperthyroidism)
- Rheumatological (inflammatory arthropathies, rheumatoid arthritis)
- Gastrointestinal (Crohn's disease, ulcerative colitis, coeliac disease, chronic pancreatitis)
- Chronic liver disease
- Chronic obstructive pulmonary disease

Exclude non-osteoporotic causes of low trauma fractures:

- Metastatic bone disease (history of cancer, bone pain, symptoms of undiagnosed cancer)
- Multiple myeloma (bone pain, recurrent infections, anaemia, bleeding, kidney disease, hypercalcaemia)
- Osteomalacia (bone pain, muscle pain or weakness)
- Paget's disease (bone pain or deformity)

Manage secondary causes as appropriate, if identified.

Consider the following screening blood tests:

- FBC
- U+Es
- Bone profile
- ESR
- LFTs
- Vitamin D
- CRP
- TFTs

Consider additional blood tests if appropriate:

- Coeliac serology
- Immunoglobulins and protein electrophoresis
- PSA
- Sex hormones

MODIFIABLE FACTORS

Discuss the following modifiable factors that can help maintain bone health with all patients:

- Healthy weight (BMI > 20)
- Well-balanced, calcium-rich diet (see Calcium Questionnaire on [page 3](#) to assess intake)
- Adequate vitamin D or sunlight exposure
- Adequate physical activity and exercise – see www.theros.org.uk for specific exercises
- Stop smoking
- Drink alcohol within recommended limits
- Strength and balance – [Super Six Exercises](#)
- Reducing fall risk

OSTEOPOROSIS TREATMENT – FIRST LINE

Oral Bisphosphonates

Consider starting all patients on:

- Alendronic Acid 70mg once weekly

If patient is unable to tolerate alendronate, please consider:

- Risedronate 35mg once weekly

Oral bisphosphonates should be taken on the same day each week – it should be taken in the morning on rising, on an empty stomach – the tablet should be swallow whole with a full glass of water – stand or sit upright for at least 30 minutes after taking – can then eat and drink normally and take other medications (except Calcium and Vitamin D supplement which should be taken after at least 2 hours).

If patient cannot tolerate oral bisphosphonates, please contact Rheumatology bone services.

Patients should inform dentist of therapy.

Consider DXA scan after 5 years on treatment, at interval suggested in DXA scan report or sooner if further fracture.

Maximum duration of therapy is 10 years unless advised by Bone Clinic.

Please check compliance/concordance with therapy.

Calcium and Vitamin D

Calcium and Vitamin D supplements is not effective at reducing fracture risk if taken alone (except very elderly or housebound patients).

Consider completing the Calcium Questionnaire on [page 3](#) to assess intake.

If dietary calcium intake is ≥ 700 mg per day consider Vitamin D only supplementation as this may be better tolerated:

- Colecalciferol tablets 10 mcg (400 iu) daily

If dietary calcium intake is < 700 mg per day, consider Calcium and Vitamin D supplementation:

- Accrete D3 tablets – one tablet twice daily

Calcium supplement can cause abdominal upset.

PATIENT INFORMATION

Consider providing the patient with the following patient information resources:

- Taking a Bisphosphonate (NHSG)
- Better Bone Health for Everybody (ROS)

Signpost patient to the Royal Osteoporosis Society website for information and resources.

REFERRAL

Consider referral to Rheumatology Bone Service if:

- Patient is intolerant of, or unable to take, both alendronic acid and risedronate

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Calcium Questionnaire

To assess your average daily calcium intake enter the number of times in a week that you eat the food listed below, multiply that number by the values given and enter that in the column total. Add up the totals in the last column and divide by seven to get your average daily calcium intake. Normal dietary calcium intake is approximately 700mg daily.

Example:

For cups of tea with milk, if you have tea 21 times in a week = $21 \times 40\text{mg} = 840\text{mg}$ total per week

| Food | Total per week | Multiplied by | Total calcium (mg) |
|---|----------------|---------------|--------------------|
| Cups of tea with milk | | 40mg | |
| Cups of coffee with milk | | 50mg | |
| Milky drinks | | 250mg | |
| Milk with cereal | | 155mg | |
| Slices of white or brown bread | | 30mg | |
| Slices of wholemeal bread | | 15mg | |
| Portions of cheese | | 320mg | |
| Portions of cottage cheese | | 50mg | |
| Biscuits | | 30mg | |
| Portions of cake | | 50mg | |
| Portions of milk pudding (custard, yoghurt etc) | | 100mg | |
| Portions of green vegetables | | 40mg | |
| Portions of sardines or pilchards | | 350mg | |
| Portions of fish | | 50mg | |
| Porridge | | 37mg | |
| Muesli | | 100mg | |
| Pancakes or crumpets | | 80mg | |
| Oranges | | 75mg | |
| Eggs (double for scrambled or omelette) | | 37mg | |
| Cheese omelette | | 477mg | |
| Cheese sauce | | 190mg | |
| Quiche | | 200mg | |
| Lasanga, moussaka or similar | | 225mg | |

More information available from:
NHS Grampian Osteoporosis Advice Line –
 01224 555078 (answer machine service)
Royal Osteoporosis Society –
www.theros.org.uk or 0808 800 0035

Add up the above column
for total calcium per week

Divide total calcium per week
by 7 for daily calcium intake