

Osteoporosis

Red flags

- Low trauma fracture, including vertebral fracture
- Corticosteroid use for longer than 3 months
- Recurrent falls

Background | Cefndir

▼ About osteoporosis

About osteoporosis

- Osteoporosis is a progressive disease characterised by increased bone fragility and increased fracture risk.
- It is asymptomatic until a fracture occurs.
- There are major consequences after an osteoporotic fracture. After a hip fracture:
 - there is a 25% death rate at 1 year.
 - 20% of those admitted from their own home are discharged to institutional care.
 - the risk of imminent fracture can be 2.5 times higher over the 2 years following a fracture. ¹
- 30% of fractures occur in men, who have a higher fracture-related mortality than women, and are more likely to have secondary osteoporosis.

Assessment | Aseiad

1. Identify patients older than 50 years ² who:
 - have a past medical history of a ▼ low trauma fracture. All acute fractures will eventually be seen in secondary care by the fracture liaison service.

Low trauma fracture

- Fracture resulting from low-energy trauma, e.g. falls from standing height or less.
 - Most commonly occurs in the wrist, hip, and spine (also humerus, ribs, tibia, and pelvis).
- are on [long-term corticosteroids](#).
 - are at [high risk of falls](#).
2. Determine the risk of osteoporosis by using the [Fracture Risk Assessment Tool \(FRAX\)](#).

Fracture Risk Assessment Tool (FRAX)

- Record the FRAX score in the patient's notes.
- Follow the National Osteoporosis Guideline Group (NOGG) guidance which appears on the FRAX tool after calculating the patient's risk – click "View NOGG Guidance".

The [FRAX](#) is recommended by the NICE.

- It estimates the 10-year probability of a major osteoporotic fracture.
 - It may underestimate the risk of fracture for patients with vertebral fractures.
3. Follow the National Osteoporosis Guideline Group (NOGG) guidance:
- for [requesting a bone density \(DXA\) scan](#).

Requesting a bone density (DXA) scan

- Request a DXA scan according to the NOGG guidance.
 - If dark red (very high risk) – specialist assessment will be needed, do not request a DXA scan.
 - If red – treatment will be needed, do not request a DXA scan.
 - If amber – request a [DXA scan](#).
 - If green – no treatment will be needed, do not request a DXA scan.
- to guide the choice of [baseline investigations](#).

Baseline investigations

Arrange according to the [FRAX/NOGG grading](#):

- Red or above treatment threshold – arrange bone profile, [electrolytes and renal function](#), liver profile including gamma GT, vitamin D, parathyroid hormone (PTH), paraprotein screen, anti-TTG, thyroid profile, FBC, urine for Bence-Jones if indicated

Electrolyte profile

Select electrolyte profile on GPTR. Sodium, potassium and creatinine will be tested, and reported with an eGFR.

- Amber – arrange as listed on the DXA clinical report.
- Green – no specific investigation is required.

4. Consider [secondary causes](#) of osteoporosis.

Secondary causes

- Malabsorption, e.g. [coeliac disease](#)
- [Inflammatory arthritis](#), e.g. rheumatoid arthritis
- [Amenorrhoea](#) for more than 6 months, younger than 45 years
- [Eating disorders](#)
- [Male hypogonadism](#)
- [Chronic liver disease](#)
- [Chronic kidney disease](#)
- [Hyperthyroidism](#)
- [Primary hyperparathyroidism](#)
- Medications, e.g. [corticosteroids](#), depot medroxyprogesterone acetate (Depo-Provera), aromatase inhibitors, gonadorelins, some anticonvulsant, and chemotherapy agents

Management | Rheolaeth

1. Manage any fractures:

- If a vertebral compression fracture, and severe unmanageable pain or unable to manage at home, consider requesting [acute or same-day orthopaedic assessment](#). Patients with identified compression fractures may occasionally be treated with vertebroplasty.
- If a low trauma fracture, and not already under the Fracture Liaison Service, consider requesting an assessment from the [Fracture Liaison Service](#).

Fracture Liaison Service

The Fracture Liaison Service should become involved when the patient presents to hospital. They:

- are part of the [Falls and Fragility Fracture Audit Programme](#), which is a national clinical audit programme, commissioned by the Healthcare Quality Improvement Partnership (HQIP) and managed by the Royal College of Physicians (RCP).
- may provide an update, or send results of requested investigation and treatment suggestions to general practitioners.

For referrals or if any queries, email westwalesfls.hdd@wales.nhs.uk.

2. If dark red (very high risk), request [routine general medicine assessment](#) and mark the referral for bone clinic.
3. If fracture in a patient already on bisphosphonates despite adequate compliance and have been on medication for at least 12 months, consider requesting a specialised assessment, via [routine general medicine assessment](#) and mark the referral for bone clinic, for alternative treatment, e.g. [teriparatide](#).
4. Discuss [medications for osteoporosis](#) if:

Medications for osteoporosis

- Bisphosphonates:
 - Use:
 - first-line – [alendronic acid](#) 70 mg, once a week
 - second-line – Binosto (may be tolerated if alendronic acid caused gastrointestinal upset) or [risedronate](#) 35 mg, once a week
 - third-line – [ibandronic acid](#) 150 mg once a month (specialist recommended on Hywel Dda Formulary)
 - Co-prescribe oral bisphosphonates with calcium and vitamin D. See Hywel Dda University Health Board [vitamin D guidance](#).
 - Advise the patient to remain upright after taking tablet for at least 30 minutes and until after breakfast.
 - Provide [information on possible side-effects](#) of oral bisphosphonate.

Information on possible side-effects

Downloadable fact sheets for patients on oral bisphosphonates from The Royal Osteoporosis Society:

- Alendronic acid
- Risedronate
- Ibandronic acid
- Advise about the risk of osteonecrosis of the jaw (ONJ) with bisphosphonates, and recommend a dental check-up before starting – there have been extremely rare reports of ONJ.
- If side-effects, consider changing to a monthly treatment, e.g. [ibandronic acid](#).
 -
- If the patient is unable to tolerate the first oral bisphosphonate, try another before considering a referral to secondary care.
- Request a specialised assessment, via [routine general medicine assessment](#) and mark the referral for bone clinic, if:
 - unable to tolerate oral bisphosphonates (usually due to vomiting).
 - poor compliance for any reason.
 - fracture on oral bisphosphonates, despite adequate compliance and have been on medication for at least 12 months.
- [Hormone replacement therapy \(HRT\)](#):
 - Note that [HRT](#) is effective, but the benefit is lost very quickly when therapy stops.
 - Consider for women younger than 60 years, especially with menopausal symptoms.
- [Raloxifene](#) – be aware:
 - Another alternative, but only reduces the risk of vertebral fractures.
 - Can be used in patients who have breast cancer (avoid during breast cancer treatment).
- FRAX/NOGG grades the fracture risk as:
 - red.
 - amber, and the DXA clinical report advises treatment.
 - amber, a DXA scan is unavailable or impractical, and the probability of a hip fracture is greater than 5% or a major osteoporotic fracture is greater than 20%.

- the patient is older than 75 years and has had 1 or more vertebral fractures.

5. Provide lifestyle advice for all patients:

- [Increase physical activity](#)

Increase physical activity

- Encourage specific exercise, e.g. weight bearing and loading of the bones, balance exercise, and postural work are useful for patients with osteoporosis.
- Recommend any and every exercise, except solo hang gliding, paragliding, parachuting.

- [Stop smoking](#)

- Avoid excessive alcohol – 3 or more units of alcohol per day is considered damaging to bone health (probably due to increasing the risk of falls).
- Consider [calcium](#) and [vitamin D](#) supplementation. For most patients, give a combined calcium and vitamin D supplement. Consider vitamin D alone for patients who have plenty of calcium in their diet.

Vitamin D supplementation

- [Colecalciferol](#) is the preferred vitamin D supplement.

Colecalciferol dosing for adults

Deficiency – if vitamin D levels are less than 25 nanomol/L:

- If the patient is not pregnant:
 - Stexerol (colecalciferol) 1,000 unit tablets, take 4 a day for ten weeks.
 - Stexerol (colecalciferol) 25,000 unit tablets, take 2 once a week for six weeks.
 - InVita D3 (colecalciferol) oral solution 25,000 units/mL, take 2 mL once a week for six weeks.
- If the patient is pregnant, take either Stexerol tablets or InVita oral solution – 25,000 units per week for six weeks, followed by 1,000 units per day throughout the pregnancy.

Insufficiency (vitamin D levels 25 to 50 nanomol/L) or maintenance dosing following initial treatment of deficiency:

- Stexerol (colecalciferol) 1,000 unit tablets, take 1 a day.
- Stexerol (colecalciferol) 25,000 unit tablets, take 1 once a month.

- InVita D3 (colecalciferol) oral solution 25,000 units/mL, take 1 mL once a month.

Formulation information – see also BNF – [Colecalciferol](#).

- Stexerol does not contain gelatin or peanut oil, is suitable for vegetarians, and halal and kosher approved. Stexerol tablets are stable in a compliance aid for up to 28 days. Tablets can be crushed. It is licensed for patients over 12 years of age.
- InVita D3 oral solution contains no peanut oil or gelatin and is suitable for vegetarians. It is licensed for patients of all ages.
- Healthy Start vitamins (300 units vitamin D and 70 units vitamin A) does not contain gelatin or peanut oil. Available to recipients of Healthy Start Vouchers.
- Abidec (200 units vitamin D and 666 units vitamin A) contains peanut oil, but does not contain gelatin.
- Dalavit (200 units vitamin D and 2500 units vitamin A) does not contain peanut oil or gelatin.
- Consider [vitamin D supplementation](#) for any adult patient, particularly if they are older, frail, dark-skinned, or cover their skin.
- If the patient has osteoporosis, give a prescription, and if at risk, advise over-the-counter (OTC) vitamin D.
- See Hywel Dda University Health Board [vitamin D guidance](#).

Calcium supplementation

- Aim for 1000 to 1200 mg a day.
 - It is generally recommended that patients take 1000 mg of calcium for [bone health](#), unless their diet is already rich in calcium (600 mL of milk, 3 ounces of cheese, 8 slices of white bread, or 12 ounces of mild chocolate).
 - Higher doses of calcium can cause constipation.
 - Until more data is available, local specialists recommend offering calcium supplementation to patients who do not get enough calcium from their diet.
- Consider giving [calcium and vitamin D](#):
 - Calci-D (not Cacit-D3) – a once a day chewable product with 1000 mg calcium/1000 units colecalciferol per tablet.
 - Kalcipos-D chewable – a once a day chewable tablet with 500 mg calcium/800 units colecalciferol per tablet

(for patients with fairly high calcium intake in their diet).

- Accrete-D3 – a twice a day tablet (to swallow) with 1500 mg calcium/400 units colecalciferol per tablet.
 - Adcal-D3 Dissolve – a twice a day dissolvable tablet with 1500 mg calcium/400 units colecalciferol per tablet.
 - Alter if unpalatable, or side-effects.
6. Address falls prevention. Identify those at increased risk of falls and consider a [falls assessment](#).
 7. If the patient has osteoporosis and is younger than 40 years, or has chronic kidney disease (CKD) stage 4 or worse, request a specialised assessment via [routine general medicine assessment](#) and mark the referral for bone clinic.
 8. Follow up to assess treatment effectiveness. After 5 years of treatment with oral bisphosphonate:
 - use the FRAX/NOGG tool to assess fracture risk, and
 - request a [DXA scan](#) with a full clinical report.
 9. If the patient is on [long-term corticosteroids](#) and is older than 65 years, provide preventive treatment by using [FRAX](#).
 - If they are older than 70 years or have had a previous fragility fracture, offer preventive treatment with an oral bisphosphonate.
 - If FRAX suggests a DXA scan, continue the bisphosphonate until the DXA result, which will guide if this is needed long-term.

Request | Cais

- If a vertebral compression fracture, and severe unmanageable pain or unable to manage at home, consider requesting an [acute or same-day orthopaedic assessment](#).
- If dark red (very high risk), request [routine general medicine assessment](#) and mark the referral for bone clinic.
- Request [routine general medicine assessment](#) and mark the referral for bone clinic if:
 - treatment is not tolerated or is contraindicated.
 - poor compliance for any reason.
 - renal failure – chronic kidney disease (CKD) stage 4 or worse.
 - osteoporosis in a patient younger than 40 years.

- If a low trauma fracture, and not already under the Fracture Liaison Service, consider requesting an assessment from the [Fracture Liaison Service](#).

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Information | Gwybodaeth

[For health professionals](#)

Further information

- National Osteoporosis Guideline Group (NOGG) – [Home Page](#)
- NICE Guidance – [Osteoporosis](#)

[For patients](#)

Royal Osteoporosis Society:

- [Alendronate \(Alendronic Acid\)](#)
- [Information and Support](#)
- [Nutrition for Bones](#)

SEND FEEDBACK

SOURCES

References

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