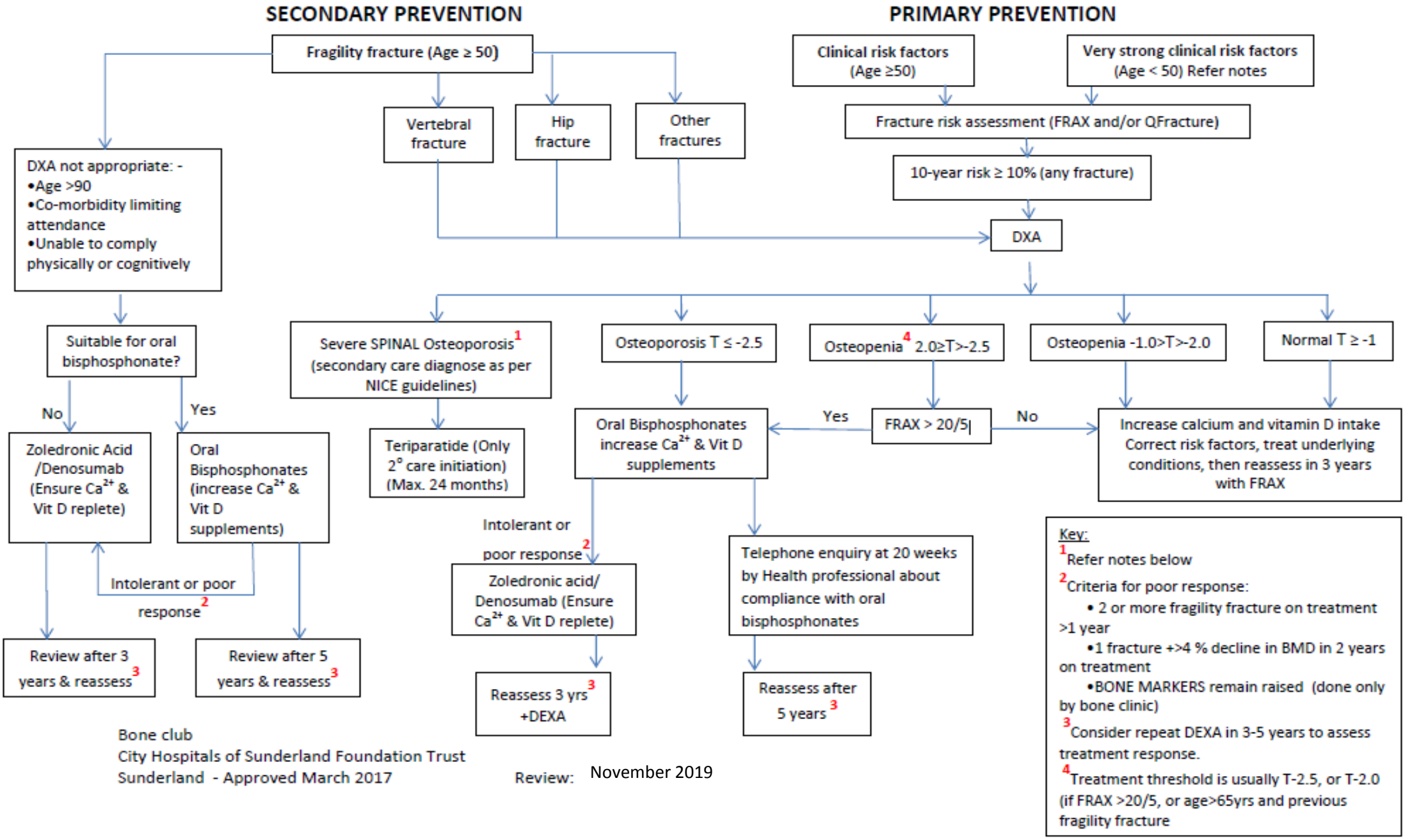
City Hospitals Sunderland NHS
NHS Foundation Trust

NHS Sunderland Clinical Commissioning Group

Osteoporosis management guidelines for adults in Sunderland



Key:

[1] Refer notes below

[2] Criteria for poor response:

- 2 or more fragility fracture on treatment >1 year
- •1 fracture +>4 % decline in BMD in 2 years on treatment
- •BONE MARKERS remain raised (done only by bone clinic)

[3] Consider repeat DEXA in 3-5 years to assess treatment response.

[4] Treatment threshold is usually T-2.5, or T-2.0 (if FRAX >20/5, or age>65yrs and previous fragility fracture

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FRAX categories:

Percentage 10 years risk of Major osteoporotic fracture /Risk of Hip fracture	
> 20 /5	High risk
10-19/3-5	Medium risk
< 10/3	Low risk

(Link to calculate FRAX: https://www.shef.ac.uk/FRAX/tool.jsp)

Investigations required:

For ALL:	
Baseline pre-therapy blood tests	Bone profile, Vitamin D (consider in high risk patients), Renal function (if eGFR <35 avoid alendronate; avoid Risedronate if eGFR < 30mL/min), TSH
Additional Work up for secondary Osteoporosis*	LH, FSH, Oestradiol (women), testosterone (men), Prolactin, TFT, Calcium, PTH, TTG (Coeliac), Serum/urine electrophoresis
For MEN and PREMENOPAUSAL WOMEN:	
Women < 50 years of age	If deemed high risk with underlying secondary pathology consider referral to bone clinic for full assessment
Men <75 years of age	Risk stratify with FRAX scores, consider individualised management plan and Bone clinic referral. N.B in men with suspected osteoporosis consider using the female reference range to calculate adjusted T score at femoral neck (treatment threshold T score<-2.5) – available via FRAX.

Steroid induced osteoporosis guidance:

For steroid induced osteoporosis, refer to RCP guidelines. They are available at https://cdn.shopify.com/s/files/1/0924/4392/files/glucocorticoid-induced-osteoporosis-guideline.pdf?2801907981964551469

Guidance for vitamin D deficient high risk patients:

For vitamin D deficient 'high risk' patients, follow NOS guidance. NOS guidance is available at https://www.nos.org.uk/document.doc?id=1352 Treat vitamin D deficiency (25OHD3<25) with 20,000 units cholecalciferol twice weekly for seven weeks (check serum calcium at 4 weeks) and continue maintenance cholecalciferol 800 units.

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Treatment options:

2) IV Bisphosphonate:

Zoledronic acid 5 mg once yearly infusion for 3 years- in intolerance/poor response to oral bisphosphonates. Ensure Vitamin D replete prior to IV bisphosphonate therapy.

^ *Usual treatment duration Zoledronic acid is 3 years. Patients should then be reviewed and reassessed. (Bone clinic referral required from primary care)*

NB Rare complications of bisphosphonates include: osteonecrosis of the jaw ONJ (incidence 1 in 10,000 per annum) and atypical femoral fracture AFF. They are associated with prolonged treatment duration.
*Repeat BMD should be considered 3-5 years after starting bisphosphonates. Treatment may be stopped after 5 years if bone density is stable or improved and no fractures. Bone density decreasing more than 4% from baseline is an indication to re-evaluate the patient and consider changing or adding therapy. Patients at very high risk of vertebral fracture may benefit from continuing treatment beyond 5 years (e.g. patients with low BMD, prevalent vertebral fracture, patients on long term steroids and patients over 75years). If in doubt please refer to Bone clinic**

3) Denosumab: (bone clinic referral required):

60 mg subcutaneous injections six monthly for 3 years initially then a further 2 yrs if necessary -consider for intolerance/poor response to oral bisphosphonates. Denosumab is an "amber" drug i.e. initiated in secondary care by a specialist with shared monitoring in primary care according to agreed protocol.

4) Strontium

Strontium ranelate is no longer available. Raloxifene or calcitriol may be prescribed under the bone clinic, but these treatments are considered less effective. They may be used 4th line if bisphosphonates/denosumab are unsuitable and the patient does not meet criteria for Teriparatide. However, the use of these medications (Raloxifene or calcitriol) is non formulary.

5) Severe Osteoporosis: Consider Teriparatide[y] (bone clinic referral required):

2 or more spinal fractures despite treatment with bisphosphonates and refer to NICE guidelines (TA 161) on severe osteoporosis

NB Consider calcium and vitamin D supplements in elderly patients and/or patients where dietary intake is deemed insufficient. Measure vitamin D in patients with high risk of deficiency.

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Risk Factors

The risk of fractures in younger women (<50) who do not have clinical risk factors is likely to be very low. NICE recommends assessment of fracture risk in this group in the presence of major risk factors (previous fracture, oral or systemic glucocorticoid use, hazardous alcohol intake, family history of fracture, low BMI, history of falls and causes of secondary osteoporosis). The presence of any of the non-modifiable factors, diseases or use of drugs listed below is associated with an increased risk of fragility fracture and individuals over the age of 50 should be considered for fracture risk assessment.

Non-modifiable risk factors:	**Modifiable risk factors:**	**Co-morbidities:**	**Pharmacological risk factors:**
• gender • age • body size (height and weight) • ethnicity (Caucasian and Asian women) • family history of fracture(s) • personal past history of fracture(s) • history of fracture(s) in first-degree relative(s) • menopause • menstrual history	• cigarette smoking • alcohol consumption (> 2 drinks/day) • low BMI <18.5 • oestrogen deficiency (age < 45 years) • bilateral oophorectomy • prolonged premenstrual amenorrhoea (>1 year) • lifelong low Ca^{2+} intake • impaired eyesight despite correction • recurrent falls • inadequate physical activity • frailty/poor health • inadequate sun exposure	• cystic fibrosis • epilepsy • diabetes • RA and SLE • IBD and malabsorption • Endocrine diseases, e.g. primary hyperparathyroidism, Thyrotoxicosis • chronic liver disease • Alzheimer's disease • Parkinson's disease • multiple sclerosis (MS) • stroke • chronic kidney disease (CKD) • asthma	• anticoagulants (uncertain role) • antidepressants • anticonvulsants • antipsychotics (uncertain role) • aromatase inhibitors • depot medroxyprogesterone • GnRH agonists • PPIs • oral glucocorticoids • thiazolidinediones (TZD)

Lifestyle advice

Includes smoking cessation, reduction of alcohol consumption, weight-bearing exercise, adequate dietary calcium intake, supplementary calcium and/or vitamin D if necessary, and daily 15-minutes sun exposure (note; high calcium intake may decrease risk of atherosclerosis if achieved without supplements. Calcium supplement use may increase risk of coronary artery calcification)

Patient information: Patients should be provided with information on osteoporosis medications, (especially ONJ risks and AFF risks with bisphosphonates). Patient information can be found at:
https://www.nos.org.uk/
http://www.arthritisresearchuk.org/arthritis-information/conditions/osteoporosis.aspx

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