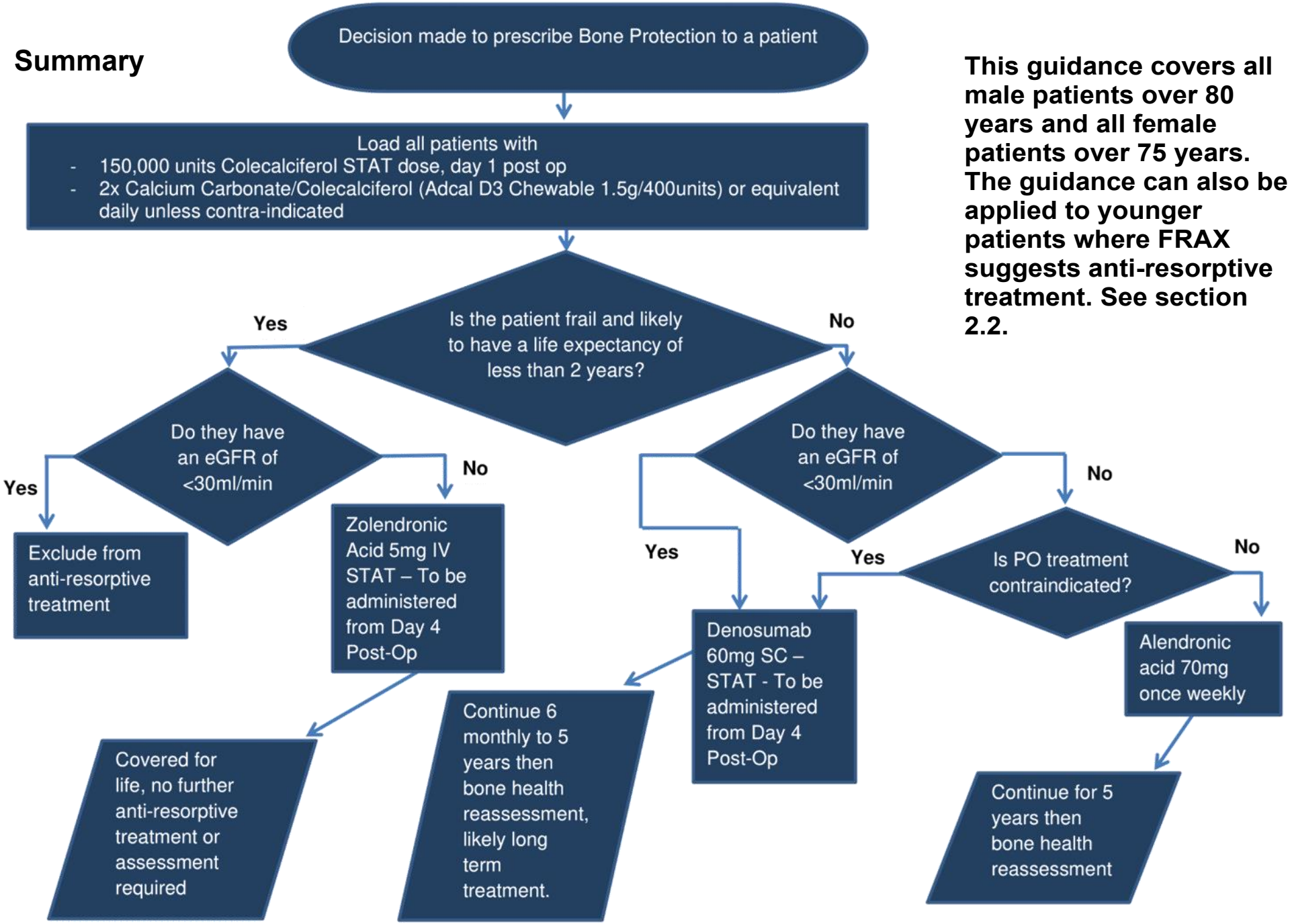
Royal Cornwall Hospitals
NHS Trust

Bone Protection Management in Post Fractured Neck of Femur (NOF) Patients Clinical Guideline

V3.0

January 2026

Summary



This guidance covers all male patients over 80 years and all female patients over 75 years. The guidance can also be applied to younger patients where FRAX suggests anti-resorptive treatment. See section 2.2.

1. Aim/Purpose of this Guideline

1.1. The aim is to assist all prescribers in prescribing treatment for bone protection in patients post neck of femur fracture (#NOF).

1.2. This version supersedes any previous versions of this document.

Data Protection Act 2018 (UK General Data Protection Regulation – GDPR) Legislation.

The Trust has a duty under the Data Protection Act 2018 and UK General Data Protection Regulations 2016/679 to ensure that there is a valid legal basis to process personal and sensitive data. The legal basis for processing must be identified and documented before the processing begins. In many cases we may need consent; this must be explicit, informed, and documented. We cannot rely on opt out, it must be opt in.

Data Protection Act 2018 and UK General Data Protection Regulations 2016/679 is applicable to all staff; this includes those working as contractors and providers of services.

For more information about your obligations under the Data Protection Act 2018 and UK General Data Protection Regulations 2016/679 please see the Information Use Framework Policy or contact the Information Governance Team.

Royal Cornwall Hospital Trust rch-tr.infogov@nhs.net

2. The Guidance

2.1. Introduction

2.1.1. Osteoporosis is a disease characterised by low bone mass and structural deterioration of bone tissue, with a consequent increase in bone fragility and susceptibility to fracture. Osteoporosis leads to nearly 9 million fractures annually worldwide, and over 300,000 patients present with fragility fractures to hospitals in the UK each year.

2.1.2. Fragility fractures are fractures that result from mechanical forces that would not ordinarily result in fracture, known as low-level (or 'low energy') trauma. The World Health Organization (WHO) has quantified this as forces equivalent to a fall from a standing height or less. Reduced bone density is a major risk factor for fragility fracture. Other factors that may affect the risk of fragility fracture include the use of oral or systemic glucocorticoids, age, sex, previous fractures and family history of osteoporosis. Because of increased bone loss after the menopause in women, and age-related bone loss in both women and men, the prevalence of osteoporosis increases markedly with age, from 2% at 50 years to more than 25% at 80 years in women. As the longevity of the population increases, so will the incidence of osteoporosis and fragility fracture.

2.1.3. Osteoporotic fragility fractures can cause substantial pain and severe disability, often leading to a reduced quality of life, and hip and vertebral fractures are associated with decreased life expectancy. Hip fracture nearly always requires hospitalisation, is fatal in 20% of cases and permanently disables 50% of those affected; only 30% of patients fully recover.

2.1.4. There are a number of therapies and treatments available for the prevention of fragility fractures in people who are thought to be at risk, or to prevent further fractures in those who have already had one or more fragility fractures. However, identifying who will benefit from preventative treatment is imprecise. A number of risk assessment tools are available to predict fracture incidence over a period of time, and these may be used to aid decision-making. These tools are limited in that they may not include all risk factors, or may lack details of some risk factors. Two tools, FRAX and QFracture, are available for use in the UK (NICE Guidance, CG146).

2.2. Prescribing bone protection post #NOF

2.2.1. This guidance covers all male patients over 80 years and all female patients over 75 years.

2.2.2. The guidance can also be applied to younger patients where FRAX recommends anti-resorptive treatment. If anti-resorptive treatment is indicated in younger females, consideration will need to be given to product licensing as most treatment options are only licensed in post-menopausal women.

2.2.3. Where possible GFR should be used to measure the patient's renal function. A consultant level decision can be made to prescribe outside of the renal function limits presented in this guidance. If this is the case, this it should be clearly documented in the medical notes.

2.2.4. Complete a visual check of the patient's teeth and confirm if a dental review is required before commencing treatment.

2.3. Vitamin D Loading:

- Check corrected calcium levels are within normal range before administering, check post op eGFR (GFR if available).

- 150,000 units of Colecalciferol as a single dose, this should be started on day 1 post #NOF surgery.

- 2 x Calcium Carbonate/Colecalciferol (Adcal D3 Chewable 1.5g/400units) or equivalent daily unless contraindicated, ongoing treatment.

2.4. Treatment:

- See above Flow chart.

2.5. Follow up treatment

- Zolendronic acid:
  - Serum Calcium check 7-14 days post dose.
  - Encourage regular dental review.
- Denosumab:
  - Serum Calcium check 7-14 days post dose.
  - Denosumab initiation letter (appendix 3) to be sent to GP or words to the same effect entered into discharge letter by prescriber.
  - Repeat dose in the community at six months, and every six months thereafter.
  - Routine dental check-ups.
- Alendronic Acid:
  - Routine dental check-ups.

3. Monitoring compliance and effectiveness

Information Category	Detail of process and methodology for monitoring compliance
Element to be monitored	Adherence to the guideline for Bone Protection in Clinical Areas.
Lead	Dr Simon McIntosh, Orthogeriatric Consultant.
Tool	National Hip Fracture Database (NHFD), records all bone protection prescribed. EPMA report to be run to follow up patients and to monitor administration of Colecalciferol loading dose. Patient documentation.
Frequency	Reports on prescribing can be run daily on weekdays, NHFD is updated quarterly.
Reporting arrangements	Reporting will occur in the Integrated Services for Older People Governance meetings.
Acting on recommendations and Lead(s)	Orthogeriatician's will undertake subsequent recommendations and action planning for any or all deficiencies and recommendations within reasonable timeframes for their areas.
Change in practice and lessons to be shared	Lessons learned or changes to practice will be shared with all the relevant stakeholders.

4. Equality and Diversity

4.1. This document complies with the Royal Cornwall Hospitals NHS Trust service Equality and Diversity statement which can be found in the Equality Diversity And Inclusion Policy or the Equality and Diversity website.

4.2. Equality Impact Assessment

The Initial Equality Impact Assessment Screening Form is at Appendix 2.

Appendix 1. Governance Information

Information Category	Detailed Information
Document Title:	Bone Protection Management in Post Fractured Neck of Femur (NOF) Patients Clinical Guideline V3.0
This document replaces (exact title of previous version):	Bone Protection Management in Post Fractured Neck of Femur (NOF) Patients Clinical Guideline V2.1
Date Issued/Approved:	10 October 2025
Date Valid From:	January 2026
Date Valid To:	October 2028
Directorate / Department responsible (author/owner):	Andrew Bastin, Lead Pharmacist for Trauma and Orthopaedics
Contact details:	01872 253531
Brief summary of contents:	Management of bone protection post fractured NOF patients.
Suggested Keywords:	Bone protection, NOF, alendronic acid, zolendronic acid, denusomab, colecalciferiol.
Target Audience:	**RCHT:** Yes **CFT:** No **CIOS ICB:** No
Executive Director responsible for Policy:	Chief Medical Officer
Approval route for consultation and ratification:	Integrated Services for Older People Governance. Medicines Practice Committee.
Manager confirming approval processes:	Richard Andrzejuk
Name of Governance Lead confirming consultation and ratification:	Kevin Wright
Links to key external standards:	None required
Related Documents:	None required
Training Need Identified?	No

Information Category	Detailed Information
Publication Location (refer to Policy on Policies – Approvals and Ratification):	Internet and Intranet
Document Library Folder/Sub Folder:	Clinical / Pharmacy

Version Control Table

Date	Version Number	Summary of Changes	Changes Made by
June 2019	V1.0	Initial issue	Victoria Ling, Lead Trauma and Orthopaedic Pharmacist
July 2022	V2.0	Updated to new Trust template. Flowchart updated to meet accessibility guidelines. Additional information added highlighting that most treatment options are only licensed in postmenopausal women.	Andrew Bastin, Lead Pharmacist for Trauma and Orthopaedics
Jan 2024	V2.1	Updates to Colecalciferol loading regimen and adjustment of renal function cut off. Updated to new Trust template.	Andrew Bastin, Lead Pharmacist for Trauma and Orthopaedics
October 2025	V3.0	Guideline reviewed prior to expiry. No changes required.	Andrew Bastin, Lead Pharmacist for Trauma and Orthopaedics

All or part of this document can be released under the Freedom of Information Act 2000.

All Policies, Strategies and Operating Procedures, including Business Plans, are to be kept for the lifetime of the organisation plus 6 years.

This document is only valid on the day of printing.

Controlled Document.

This document has been created following the Royal Cornwall Hospitals NHS Trust The Policy on Policies (Development and Management of Knowledge Procedural and Web Documents Policy). It should not be altered in any way without the express permission of the author or their Line Manager.

Appendix 2. Equality Impact Assessment

Section 1: Equality Impact Assessment (EIA) Form

The EIA process allows the Trust to identify where a policy or service may have a negative impact on an individual or particular group of people.

For guidance please refer to the Equality Impact Assessment Policy (available from the document library) or contact the Equality, Diversity, and Inclusion Team rcht.inclusion@nhs.net

Information Category	Detailed Information
Name of the strategy / policy / proposal / service function to be assessed:	Bone Protection Management in Post Fractured Neck of Femur (NOF) Patients Clinical Guideline V3.0
Directorate and service area:	Pharmacy
Is this a new or existing Policy?	Existing
Name of individual completing EIA (Should be completed by an individual with a good understanding of the Service/Policy):	Andrew Bastin, Lead Pharmacist for Trauma and Orthopaedics
Contact details:	01872 253531

Information Category	Detailed Information
1. Policy Aim - Who is the Policy aimed at? (The Policy is the Strategy, Policy, Proposal or Service Change to be assessed)	To ensure consistent and appropriate prescribing of bone protection in those patients who have fractured their neck of femurs.
2. Policy Objectives	• To ensure patients are appropriately loaded with Vitamin D. • To ensure patients receive appropriate bone protection post fracturing their neck of femur. • To prevent further deterioration to patients' bone health post fractured neck of femur.
3. Policy Intended Outcomes	• To load all patients appropriately with vitamin D, in line with National Guidelines. • To treat all patients appropriately with bone protection in line with National Guidelines. • To improve our compliance with bone protection in line with the national hip fracture database.

Information Category	Detailed Information
4. How will you measure each outcome?	National Hip Fracture Database- our compliance will increase. Annual audit.
5. Who is intended to benefit from the policy?	Patients who have fractured their Neck of Femur
6a. Who did you consult with? (Please select Yes or No for each category)	• Workforce: Yes • Patients/ visitors: No • Local groups/ system partners: Yes • External organisations: No • Other: No
6b. Please list the individuals/groups who have been consulted about this policy.	**Please record specific names of individuals/ groups:** Orthogeriaticians.
6c. What was the outcome of the consultation?	Vitamin D loading and bone protection is widely recognised as best practice
6d. Have you used any of the following to assist your assessment?	**National or local statistics, audits, activity reports, process maps, complaints, staff, or patient surveys:** None

7. The Impact

Following consultation with key groups, has a negative impact been identified for any protected characteristic? Please note that a rationale is required for each one.

Where a negative impact is identified without rationale, the key groups will need to be consulted again.

Protected Characteristic	(Yes or No)	Rationale
Age	No	The assessments and processes described in this guidance are focused on the safe prescribing of medication to patients irrespective of whether they are members of any of the equality groups listed.
Sex (male or female)	No	
Gender reassignment (Transgender, non-binary, gender fluid etc.)	No	
Race	No	

Protected Characteristic	(Yes or No)	Rationale
Disability (e.g. physical or cognitive impairment, mental health, long term conditions etc.)	No	
Religion or belief	No	
Marriage and civil partnership	No	
Pregnancy and maternity	No	
Sexual orientation (e.g. gay, straight, bisexual, lesbian etc.)	No	

A robust rationale must be in place for all protected characteristics. If a negative impact has been identified, please complete section 2. If no negative impact has been identified and if this is not a major service change, you can end the assessment here.

I am confident that section 2 of this EIA does not need completing as there are no highlighted risks of negative impact occurring because of this policy.

Name of person confirming result of initial impact assessment: Andrew Bastin, Lead Pharmacist for Trauma and Orthopaedics.

If a negative impact has been identified above OR this is a major service change, you will need to complete section 2 of the EIA form available here:
Section 2. Full Equality Analysis

Appendix 3: Denosumab Initiation letter. To be printed on headed paper

The Orthogeriatric Team,
part of Older People
Services
Royal Cornwall Hospital
Truro, Cornwall, TR1 3LJ
Tel: 01872 250000

Dear Doctor,

Re: Denosumab 60mg s/c injections

Your patient has commenced the above treatment for osteoporosis after a hip fracture. It is a RANK-L inhibitor that is given every 6 months as a subcutaneous injection for up to 10 years. Following 5 years of treatment, bone health should be reassessed to determine if treatment is still indicated.

The first dose has been given as an inpatient during their current stay. Denosumab is suitable for administration in a primary care setting. **We would therefore be grateful if you could kindly arrange to continue these 6 monthly injections at your practice, and the next dose is due _____.**

The medication has been discussed with the patient and they have been provided with a patient information leaflet.

Periodic clinical monitoring of calcium levels is recommended after use of Denosumab in patients predisposed to hypocalcaemia, including those with severe renal impairment (eGFR <30ml/min). Calcium levels should always be re-checked prior to the administration of each dose of Denosumab.

Please do not hesitate to contact us if you require further information.

Yours Faithfully,

The Consultant Orthogeriatrician team