Strategy for the secondary prevention of osteoporotic fractures – a hospital-based approach

Osteoporosis related minimal trauma fractures are a substantial and increasing burden for many hospital services, particularly within the specialities of Orthopaedics, Rheumatology and Care of the Elderly. It is particularly important that Orthopaedic Surgeons, who see most of these patients, recognise the part played by osteoporosis in the pathogenesis of these fractures. This recognition already exists in relation to fracture fixation, as brittle osteoporotic bone often requires flexible, load sharing devices for optimum stability. Furthermore, Orthopaedic Surgeons now generally accept that the typical frail, elderly patient who suffers these injuries needs a multi-disciplinary team approach to maximise chances of recovery to pre-injury levels of independence and mobility. However, as highlighted in the recently published BOA 'Blue Book', it is also essential that Orthopaedic Surgeons address the secondary prevention of osteoporotic fractures, as well as falls prevention. Furthermore, clinicians within other services, such as Care of the Elderly, must also recognise the need to initiate the assessment and treatment of osteoporosis.

It is with this in mind that this care pathway is offered to all clinicians responsible for the care of patients with minimal trauma fractures. The document is intended to support implementation of National Institute for Health and Clinical Excellence (NICE) Technology Appraisal Guidance 87 re the secondary prevention of osteoporotic fragility fractures in post-menopausal women. The NICE guidance did not address treatment in pre-menopausal women or men, but for the latter some centres may choose to follow this care pathway.

This document is the product of discussions between the National Osteoporosis Society (NOS) and the British Orthopaedic Association (BOA). The document will be reviewed when NICE publishes a clinical guideline on the assessment of fracture risk and the prevention of osteoporotic fractures in individuals at high risk (due May 2006) or sooner if NICE updates Technology Appraisal No.87 prior to that date.

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Key steps in establishing a Fracture Liaison Service for the Secondary Prevention of Osteoporotic Fractures

1 Quantify unmet need by auditing current provision

- Identify how many fracture patients present to your institution
  - *Consider all inpatient and outpatient presentations and all fracture (non-vertebral and vertebral) sites*
- Identify how many are currently assessed / treated for osteoporosis
- Identify how many are currently offered falls assessment / intervention
- Identify current pathways of care for fracture patients
  - *Consider fracture patients who are admitted to hospital, as well as, those managed as outpatients*
  - *Consider what happens to vertebral fracture patients whose fracture is reported by radiologists*

2 Establish multidisciplinary steering group

- Appoint lead clinician
- Engage relevant groups
  - *Primary Care / PCO*
  - *Secondary Care*
    - *DXA service provider (if available)*
    - *Osteoporosis service provider (Endocrinologist / Rheumatologist / Gynaecologist etc)*
    - *Orthopaedic Surgeons*
    - *Care of the Elderly Clinicians for Fall Service Provision/Falls Co-ordinator*
    - *Specialist Nurses*
    - *Relevant service managers*
    - *Paramedical staff (Physiotherapists, OTs etc)*
    - *Others (Consultants in Public Health, Prescribing Advisors, Patient Reps and Support Groups etc)*

3 Configure service infrastructure

- Establish aims and objectives of service i.e. '*To assess all post-menopausal women with a new fracture at any skeletal site for osteoporosis (other than those occurring in RTA) and to provide treatment and falls intervention strategies for secondary prevention of fractures, where appropriate*'
- Establish funding sources
  - *Seek opportunities for pilot funding*
  - *Develop business case for permanent funding – sensitive to NICE mandatory recommendations*
- Establish access to axial DXA
- Appoint personnel to deliver service
  - *Nurse Specialist(s) etc*
- Devise protocols to identify patients at most appropriate points in pathway of care
  - *Osteoporosis treatment protocols*
  - *Falls assessment protocols*
  - *Establish strategy for patient education*
  - *Define key information*
  - *Identify / write patient education materials*
- Address training needs of staff
- Purchase and create database
  - *To generate letters*
  - *For audit of process outcomes*
  - *Research potential*

4 Service delivery

- Inform all staff who will interface with the service
- Implement strategy for identification of fracture patients
  - *Fractures managed as inpatients*
    - *Orthopaedic team meeting*
    - *Orthopaedic ward visits*
    - *Ortho-rehab ward visits*
    - *Ward receptionists*
    - *Orthopaedic secretaries*
    - *Existing hip fracture/vertebral fracture audits*

- *Fractures managed as outpatients*
  - *Fracture clinics*
  - *Fracture clinic receptionists*
  - *Fracture clinic nurses*
  - *Orthopaedic secretaries*
  - *A&E databases*
- *Mechanism for identifying patients when nurse specialist is 'off-duty'*

- Establish 'one-stop' DXA / Specialist Nurse Clinics – to integrate visit for axial DXA (where DXA required) and to educate patients. Treatment decisions should be included as part of the physician's DXA scan report, which should be sent to the patient's GP.
- Agree content of letter output from service
  - *Axial DXA data*
  - *Risk factors for osteoporosis*
  - *Risk factors for fracture*
  - *Patient-specific treatment recommendation*
- Define link with falls service assessment
  - *Integrated with osteoporosis service*
  - *If separate, identify potential links*
- Involve primary care teams
  - *Ensure GPs are notified of fragility fracture patients*
  - *Support GPs to identify and manage prevalent fragility fracture patients*

5 Other

- Assessment of process outcomes
  - *Programme audit activity*
  - *Primary Care satisfaction questionnaires, patient satisfaction questionnaires*
  - *Education of other secondary care staff*
- Consider how to monitor/facilitate patients' adherence to medication
- Provide information about the support and services offered by the National Osteoporosis Society (NOS)

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6 Further Information

- NICE Technology Appraisal Guidance 87 Bisphosphonates, selective oestrogen receptor modulators and parathyroid hormone for the secondary prevention of osteoporotic fractures in post-menopausal women. January 2005. www.nice.org.uk/page.aspx?o=115560
- NICE Clinical Guideline on the assessment and prevention of falls in older people. November 2004. www.nice.org.uk/page.aspx?o=233391
- SIGN Management of osteoporosis SIGN 71, June 2003 and Prevention and management of hip fracture in older people SIGN 56, January 2002. www.sign.ac.uk
- British Orthopaedic Association. The care of fragility fracture patients. Sept 2003. www.boa.ac.uk
- British Geriatric Society. Falls and Bone Health Special Interest Group www.bgs.org.uk
- NOS Guidelines for the provision of a clinical bone densitometry service. May 2002. www.nos.org.uk
- NOS Position statement on the reporting of dual energy x-ray absorptiometry (DXA) bone mineral density scans. August 2002. www.nos.org.uk
- NOS Position statement on the use of peripheral x-ray absorptiometry in the management of osteoporosis. November 2004. www.nos.org.uk

7 Service Examples

- Glasgow Fracture Liaison Service, Dr Alastair McLellan (0141 211 2880)
- Greenwich Falls and Fractures Strategy, Dr Louise Dolan, Queen Elizabeth Hospital NHS Trust (020 8836 4914)
- Newcastle Fracture Clinic Service, Dr Roger Francis (0191 223 1160), Sister Karen Loughney (0191 233 6161 ext 23183)
- Other good practice examples are cited in the National Service Framework (NSF) for older people's standards listed on www.dh.gov.uk

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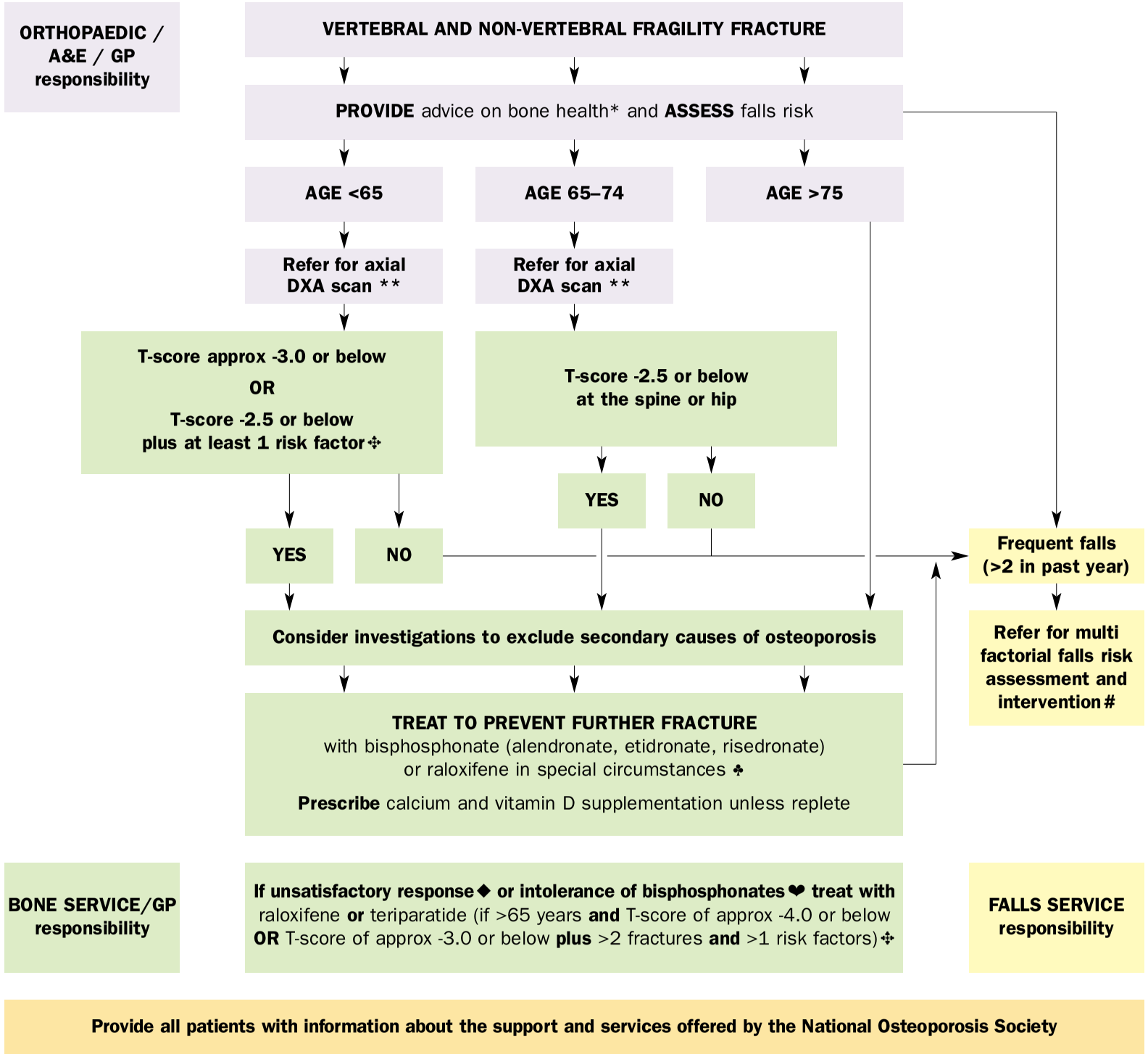
Clinical care pathway for **post-menopausal** women who have sustained a clinically apparent osteoporotic fracture



Notes for algorithm

* ALL fragility fracture patients should receive advice on bone health:

- adequate calcium and vitamin D intake
- regular weight-bearing and strengthening exercises
- limit alcohol to 2 units per day and stop smoking

** Current evidence for the cost-effectiveness of anti-resorptive treatment is based on BMD assessment by **axial** DXA and this investigation must be requested in those below 75 years. NICE has also stated that:

- Where the waiting time for DXA scan is long, anti-resorptive treatment should be commenced immediately and reviewed when the scan result becomes available
- If DXA is not available, commence treatment as in the above algorithm as if T-score were <-2.5
- In women aged 75 years and above, treatment should be commenced without a DXA scan. However, in cases of uncertainty a DXA scan can be performed to confirm osteoporosis

The NOS accepts that in some circumstances pDXA could be used adopting a triage approach, but only where there is strict adherence to the NOS Position Statement on the appropriate use of the technique.

✣ Risk Factors include:

- low body mass index (< 19 kg/m^2)
- family history of maternal hip fracture before the age of 75 years
- untreated premature menopause
- certain medical disorders independently associated with bone loss (such as chronic inflammatory bowel disease, rheumatoid arthritis, hyperthyroidism or coeliac disease)
- conditions associated with prolonged immobility
- use of glucocorticoids for 3 months or more

♣ Raloxifene is an option in women:

- for whom bisphosphonates are contra-indicated
- who are physically unable to comply with the recommended dosing regimen for the use of bisphosphonates
- who have had an unsatisfactory response to bisphosphonates
- who are intolerant of bisphosphonates

◆ An unsatisfactory response can be considered to have occurred when:

- a woman has a further fragility fracture after adhering to therapy for at least 1 year and
- there is evidence of a decline in BMD below her pre-treatment baseline

❤ Intolerance of bisphosphonates is defined as oesophageal ulceration, erosion or stricture, or severe upper gastrointestinal symptoms, any of which warrants discontinuation of treatment with a bisphosphonate.

\# A multifactorial falls risk assessment should include assessment of:

- circumstance of the fall and falls history
- current medication
- gait, balance and mobility, and muscle weakness
- visual impairment
- cognitive impairment and neurological examination
- cardiovascular examination
- urinary incontinence
- home hazards
- the individual's perceived functional ability and fear of falling

\# Effective multifactorial interventions for modifying risk factors for falls include:

- strength and balance training
- gait training and advice on the use of assistive devices
- modification of home hazards
- review and modification of medication, particularly psychotropic drugs
- treatment of postural hypotension
- treatment of cardiac arrhythmias and other disorders