

**AUDIT OF PREVENTION  
AND  
TREATMENT OF OSTEOPOROSIS**

**March 2001**

This document should be read in conjunction with Guidance on the Prevention and Treatment of Osteoporosis (March 2001)

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# CREST

CLINICAL RESOURCE EFFICIENCY SUPPORT TEAM

# **AUDIT OF THE GUIDELINES ON THE PREVENTION AND TREATMENT OF OSTEOPOROSIS**

## **Introduction**

Clinical Guidelines are now common place within the NI Health and Personal Social Services. They exist to provide health care professionals, patients and the general public with an overview of the best information on a given subject, which has been systematically gleaned from a wide variety of validated sources.

As professionals it is vital to keep knowledge and skills up to date and the provision of quality guidelines aids this process. As well as keeping knowledge and skills updated it is important to maintain awareness of the quality of care provided, whether in hospital or the primary care setting. To achieve this all professionals must take part in regular and systematic medical and clinical audit, recording data honestly. If necessary, the results of the audit must be responded to, to improve current practice. All too often the audit cycle is not completed, but remember the only way to determine if changes implemented have worked, is to carry out a re-audit.

With audit being such a vital tool, CREST has prepared an audit to accompany these guidelines on the Prevention and Treatment of Osteoporosis. The audits can be carried out in isolation in either primary or secondary care, although consideration might be given to undertaking an audit across the primary/secondary care interface and a suitable topic is an audit of those patients who have suffered low impact/fragility fractures.

This audit pack, that accompanies the guidelines, provides suggestions on how to identify patients, both in primary and secondary care. The criteria have been set to match the guidelines and data collection forms have also been developed. These forms relate to specific groups of patients, but can be used in either primary or secondary care. A summary sheet has also been prepared so the results of the first audit, in conjunction with locally set standards, can be recorded and subsequently referred to and compared following re-audit.

*This audit pack has been designed by CREST and they agree to it being reproduced and used by health professionals in primary and secondary care working in Northern Ireland.*

## **AUDIT OF PREVENTION AND TREATMENT OF OSTEOPOROSIS**

### **Aim:**

To ensure all patients at risk, or with osteoporosis, are identified and managed appropriately.

### **Objectives:**

- To identify all patients at risk from or with established osteoporosis
- To ensure all patients identified are advised regarding appropriate preventative measures
- To ensure patients with osteopenia or osteoporosis receive appropriate treatment and follow-up.
- To ensure patients with osteoporotic fractures are managed appropriately in hospital

### **Methodology:**

#### **Prepare a target group of patients who are at risk from osteoporosis**

It is not always easy to identify patients who are in the 'at risk' target groups listed in the CREST guidelines. Therefore consideration must be given to the manual/computer systems there are available within the hospital or general practice setting. To ensure you '**don't bite of more than you can chew**', decide which groups of patients to target first for audit and then systematically work through the various categories of patients at risk. Start with those most easily identified and patients at highest risk.

It should be possible to audit the CREST guidelines retrospectively in the following groups of patients:

- Patients with oestrogen deficiency:
  - premature natural or surgical menopause (age <45 years)
  - primary hypogonadism in women
  - patients with hysterectomy and not on HRT
  - secondary amenorrhoea (>1 year)
- Primary or secondary hypogonadism in men

- Patients on prolonged oral steroids
  - prednisolone >7.5 mg/day for 6 months or more
- Patients with a low body mass index (< 19 kg/m<sup>2</sup>)
- Patients with other disorders associated with osteoporosis:
  - Anorexia nervosa
  - Malabsorption syndromes
  - Primary hyperparathyroidism
  - Post-transplantation
  - Chronic renal failure
  - Chronic liver disease
  - Hyperthyroidism
  - Prolonged immobilisation
  - Cushing's syndrome
- Patients with radiographic evidence of osteopenia and/or vertebral deformity

The remaining patients who are at risk from osteoporosis are not as easily identified and consideration might be given to auditing these patients prospectively. Prepare a disease register as patients are identified and maintain it for future audit purposes. These patients include those:

- with previous fragility (low impact) fracture, particularly of the hip, spine or wrist
- with a maternal family history of hip fracture
- with loss of height, thoracic kyphosis (after radiographic confirmation of vertebral deformities)

### **Identifying patients**

The ease by which patients can be identified will depend very much on the computer/manual systems available within your hospital and the various departments. This also applies to general practice. Consideration must be given as to what is practical to identify.

### **In General Practice:**

Computerised practices can use a Read Code search to identify patients with relevant diagnoses although consideration must be given to the standardisation of Read Codes as this will facilitate future search strategies.

A search of the repeat prescribing system is also useful for identifying patients on relevant pharmacological therapies. Although the repeat prescribing system will identify patients currently being prescribed corticosteroid therapy, it may not identify patients who have had long term steroids in the past. In this scenario, consider diagnoses prompting steroids, e.g. polymyalgia rheumatica, severe asthma etc.

Practices not computerised, or using their systems in a limited way, consider asking all staff to prepare disease registers prospectively.

Unless the practice has opted out, a list of patients is generated for smear targets, this indicates hysterectomised women between the ages of 25 - 64 years.

### **In Hospital:**

The ICD10 codes will enable searches for patients who have been admitted and diagnosed with some of the risk factors stated earlier. For example ladies who have had hysterectomies, or patients with a transplant, or diagnosed with chronic renal failure.

If the A&E Department is computerised, the system records diagnoses and this can be used to identify patients, especially in relation to fragility (low impact) fractures. The Radiology Department might also be a useful source.

The knowledge of the Consultant, Nursing and Administrative staff can be utilised to identify patients at risk from osteoporosis, especially if clinics are organised for certain conditions such as anorexia nervosa.

The audit process:

1. Prepare a target group of patients who are at risk from osteoporosis.
2. Set standards against the criteria listed.
3. Choose appropriate data collection form(s) and complete, allocating patients codes.
4. Collate results onto the final results sheet.
5. Discuss with colleagues, the results achieved against the standards set.
6. Make changes were appropriate.
7. Reaudit to determine if improvements have been made and/or the guidelines are still being adhered to.

## Criteria & Standards

The following criteria have been written to match the guidelines. It is important that professionals set appropriate standards to be aimed for, **before** starting the audit.

To ensure all patients at risk from osteoporosis are advised regarding appropriate preventative measures:

<b>Criteria</b>	<b>Standard (%)</b>
<i>Patients at risk from osteoporosis have received lifestyle advice on:</i>	
1. Stopping smoking	
2. Avoiding excess alcohol consumption	
3. Taking regular weight bearing exercise	
4. Ensuring a good diet, especially in relation to calcium and Vitamin D	
5. The risk of falls and accident prevention	
6. Women with an early menopause (<45 years) have been considered for hormone replacement therapy	
7. The benefits and risks of HRT have been discussed in all women, especially those aged between 50-60 years.	
8. Calcium ± Vitamin D has been advised or prescribed	
9. A DXA scan is considered for all patients in whom management will be altered.	

To ensure patients with osteopenia or osteoporosis receive appropriate treatment and follow-up.

Good practice states that a DXA scan is used to diagnose osteoporosis, although the reality is that often it is the clinical condition used in diagnosis.

**Criteria** **Standard (%)**

*Patients with osteopenia or osteoporosis have received lifestyle advice on:*

1. Stopping smoking
2. Avoiding excess alcohol consumption
3. Taking regular weight bearing exercise
4. Ensuring a good diet, especially in relation to calcium and Vitamin D
5. The risk of falls and accident prevention
6. Women with an early menopause (<45 years) have been considered for hormone replacement therapy
7. The benefits and risks of HRT have been discussed in all women, especially those aged between 50-60 years
8. Calcium ± Vitamin D has been advised or prescribed, if appropriate
9. For women in whom HRT is contra-indicated or not tolerated:
  - in osteopenia  
SERM or Bisphosphonates have been considered
  - in osteoporosis (T< -2.5)  
one of the following has to be considered:  
- Bisphosphonates, SERM, Calcitonin OR Calcitriol
10. A follow-up/review DXA scan is considered for all patients in whom management will be altered.

*In patients who have diagnosis of established osteoporosis: (T< -2.5 and one or more fractures)*

11. Pain control has been considered
12. Calcitonin + Vitamin D supplementation has been advised or prescribed
13. One of the following has been considered:  
Bisphosphonates, HRT/SERMS, Calcitonin OR Calcitriol
14. Specialist advice has been sought for men and those with severe disease.
15. Secondary causes have been excluded.

To ensure patients with osteoporotic fractures are managed appropriately

**Criteria** **Standard (%)**

Osteoporosis should be considered in patients with other wrist/vertebral fractures and where appropriate, treatment initiated.

*Patients with a fractured hip should be:*

1. Operated on within 24 hours, medical condition permitting
2. Closely supervised by an experienced anaesthetist
3. Receive prophylaxis antibiotics
4. Receive prophylactic anticoagulation

**Guidance Notes for the Audit**

- Complete data collection honestly and accurately.
- The ‘rule of thumb’ is if it is not recorded, it is not done.
- Possible answers have been provided and these were identified through the pilot audit.
- NA means not applicable.

<b>Criteria/question</b>	<b>Guide</b>
Fragility Fracture	A fracture from standing height or less and includes prevalent vertebral deformity.
DXA scan result	Normal T>-1.0; Osteopenia T -1.0 to -2.5; Osteoporosis T<-2.5; Established osteoporosis T < - 2.5 + one or more fracture
Scan currently considered	DXA scan should only be considered if it will affect management.
Lifestyle advice	Use the N/A (not applicable) for patients who are non-drinkers or physically unable to exercise owing to a disability

<b>Criteria/question</b>	<b>Guide</b>
Weight bearing exercise	It should be recorded in the notes that advice has been given about the benefits of physical exercise and exercise regimens constructed depending on stage of osteoporosis
Falls risk assessed and accident prevention advice	The risk factors for falls such as vision; walking difficulties; medication and other environmental issues should be considered. Subsequent advice should be given on the prevention of falls.
Bisphosphonates	Etidronate, Alendronate and Risedronate
SERMS, in women, if appropriate	Raloxifene decreases the vertebral fracture risk and is used to increase bone mineral density
Specialist referral considered	Seek specialist advice for men with osteoporosis or if osteoporosis is severe, in either women or men.
Grade of anaesthetist	The anaesthetist supervising the operation should be experienced - specify if it is a Senior House Officer; Specialist Registrar (and what year they are), Staff Grade; Associate Specialist or a Consultant

**An audit of patients with osteoporosis who have previously suffered a low impact / fragility fracture.**

Patient code	<i>Possible answer</i>							
Age	<i>specify in years</i>							
Sex	<i>M / F</i>							
If female, menopausal stage	<i>Pre/Peri/Post</i>							
Is there a family history of osteoporosis	<i>Yes / No</i>							
Specify other known risk factors	<i>e.g. early menopause; long term oral steroids</i>							
Number of osteoporotic fractures in the past	<i>specify number</i>							
Specify fracture site(s)	<i>e.g. hip; colles</i>							
Length of time since (last) fracture	<i>specify in months</i>							
Was osteoporosis considered at the time	<i>Yes / No</i>							
If Yes, was treatment started?	<i>Yes / No</i>							
Has specialist referral been considered?	<i>Yes / No</i>							
Have secondary causes of osteoporosis been excluded?	<i>Yes / No</i>							
Has patient had baseline DXA scan?	<i>Yes / No / NA</i>							
If Yes - specify result	<i>Give 'T' score</i>							
Date of last scan	<i>dd/mm/yy</i>							
Is scan currently considered?	<i>Yes / No / NA</i>							

**Audit 1 contd.****Lifestyle advice – to be given to all patients:**

Current smoking habit	<i>Yes / No / NA</i>							
Advice given re: alcohol	<i>Yes / No / NA</i>							
Advice on weight bearing exercise	<i>Yes / No / NA</i>							
Advice given on diet, containing Calcium & Vit. D	<i>Yes / No</i>							
Is patient at risk from falling	<i>Yes / No</i>							
Accident prevention advice	<i>Yes / No / NA</i>							

**Pharmacological interventions:**

Calcium and/or vitamin D prescribed?	<i>Yes / No</i>							
In female patients the benefits and risks of HRT discussed?	<i>Yes / No / NA</i>							
Is patient taking HRT?	<i>Yes / No / NA</i>							
If No, have SERMS been prescribed?	<i>Specify name</i>							

For all patients with established osteoporosis:

Bisphosphonates OR Calcitonin OR Calcitriol prescribed?	<i>Yes / No / NA (SERMS/HRT: already prescribed)</i>							
If Yes, specify which	<i>Product name</i>							

**For patients who have had a hip fracture – to be completed by hospital only**

Was patient fit for surgery	<i>Yes / No</i>							
Length of time from admission to operation	<i>(specify in hrs)</i>							
If delayed, specify why	<i>Give reason</i>							
Grade of anaesthetist supervising operation	<i>SHO; Sp Reg; SG; Asp; Con.</i>							
If SHO, SP Reg, specify year of seniority	<i>e.g. 1st, 2nd year</i>							
Prophylactic antibiotics given	<i>Yes / No</i>							
Prophylactic anti-coagulation given	<i>Yes / No</i>							

### An audit of patients at risk from corticosteroid induced osteoporosis

Patient code	<i>Possible answer</i>							
Age	<i>specify in years</i>							
Sex	<i>M / F</i>							
If female, menopausal stage	<i>Pre / Peri / Post</i>							
Is patient currently taking corticosteroids	<i>Yes / No</i>							
Why has or why is patient taking corticosteroids	<i>specify reason</i>							
Length of time corticosteroids have or are being taken	<i>specify in years</i>							
Specify dose								
Was patient counselled on the risk of osteoporosis	<i>Yes / No</i>							
Specify other risk factors	<i>e.g. early menopause; transplant patient</i>							
Has patient been previously DXA scanned	<i>Yes / No</i>							
If Yes, specify result	<i>Normal; Osteopenic; Osteoporosis; Established Osteoporosis</i>							
If established osteoporosis has specialist referral been considered?	<i>Yes / No</i>							
Have secondary causes of osteoporosis been excluded	<i>Yes / No</i>							
Date of last scan								
Is scan currently considered	<i>Yes / No</i>							

Lifestyle advice given to all patients:

Smoking	<i>Yes / No / NA</i>							
Alcohol	<i>Yes / No / NA</i>							
Weight bearing exercise	<i>Yes / No / NA</i>							
Diet, containing Calcium and Vitamin D	<i>Yes / No</i>							
Accident prevention advice	<i>Yes / No / NA</i>							

**Pharmacological interventions.**

Calcium and/or vitamin D prescribed?	<i>Yes / No / NA</i>							
In female patients the benefits and risks of HRT discussed?	<i>Yes / No / NA</i>							
Is patient taking HRT?	<i>Yes / No / NA</i>							
If No, have SERMS been prescribed?	<i>Specify name</i>							

For all patients with established osteoporosis:

Bisphosphonates OR Calcitonin OR Calcitriol prescribed?	<i>Yes / No / NA (SERMS/HRT: already prescribed)</i>							
If Yes, specify which	<i>Product name</i>							

**Audit of the prevention and treatment of osteoporosis in menopausal women or those who have had a hysterectomy.**

Patient code	<i>Possible answer</i>							
Age at menopause	<i>specify in years</i>							
Risk of osteoporosis discussed	<i>Yes / No</i>							
Specify other osteoporotic risk factors	<i>e.g. long term oral steroids</i>							
Risks and benefits of HRT discussed?	<i>Yes / No</i>							
Is patient on HRT?	<i>Yes / No</i>							
Currently compliant	<i>Yes / No / NA</i>							
Has patient ever taken HRT	<i>Yes / No</i>							
Length of time HRT taken in past or currently being taken	<i>Specify in years / NA</i>							
If not taking HRT have SERMS (Raloxifene) been prescribed?	<i>Yes / No</i>							
Has patient had baseline DXA scan?	<i>Yes / No / NA</i>							
If Yes - specify result	<i>Normal; Osteopenic; Osteoporosis; Established Osteoporosis</i>							
If established osteoporosis have secondary causes been excluded?	<i>Yes / No</i>							
Date of last scan	<i>dd/mm/yy</i>							
Is scan currently considered ?	<i>Yes / No / NA</i>							

Lifestyle advice to be given to all patients:

Smoking	<i>Yes / No / NA</i>							
Alcohol	<i>Yes / No / NA</i>							
Weight bearing exercise	<i>Yes / No / NA</i>							
Diet, especially Calcium & Vit. D	<i>Yes / No</i>							
Accident prevention advice	<i>Yes / No / NA</i>							

Pharmacological intervention, in patients with established osteoporosis:

Calcium and/or Vitamin D prescribed?	<i>Yes / No / NA</i>							
Bisphosphonates OR Calcitonin OR Calcitriol prescribed?	<i>Yes / No / NA (SERMS/HRT already prescribed)</i>							

## Summary sheet for the audit of patients with osteoporosis who have previously sustained a low impact/fragility fracture (Audit 1)

Total number of patients identified in audit target group \_\_\_\_\_

Number of male patients

Number of female patients

Criteria	Standard set %	Standard achieved %
Female patients menopausal stage checked		
Other risk factors documented		
Osteoporosis considered at time of fracture		
Percentage of patients treatment started		
Specialist referral considered		
Baseline DXA scan undertaken		
Secondary causes of osteoporosis excluded		
Smoking habit checked		
Advice given re: alcohol		
Advice given re: exercise		
Advice given re: diet		
Falls risk assessed		
Accident prevention advice given		

Female patients only

HRT discussed		
HRT or SERMs prescribed		

All patients

Calcium and/or Vitamin D prescribed		
Bisphosphonates OR Calcitonin OR Calcitriol prescribed if applicable (ie not on HRT/SERM)		

For patients with a hip fracture

Patients operated on within 24 hours		
Operations supervised by Staff Grade; Associate Specialist or Consultant		
Prophylactic antibiotics given		
Prophylactic anti-coagulation given		



