Draft for consultation

Quality Standards for Osteoporosis and Prevention of Fragility Fractures

September 2017

Have your say
We would welcome your views and opinions. Please use the consultation response form when making comments and return this by Thursday 5 October 2017 to: a.thurston@nos.org.uk.

Please note that this consultation document has not been professionally proof read. Typographical errors and grammar will be corrected prior to final publication.

The provisional recommendations presented here do not constitute the National Osteoporosis Society’s formal views on this topic. The recommendations are provisional and may change after consultation.
Quality Standards for Osteoporosis and Prevention of Fragility Fractures

These quality standards reflect good practice for all services involved in the fragility fracture prevention pathway. They have been developed by a group of clinicians with expertise in providing care to treat osteoporosis and reduce fracture risk. The standards are derived from UK guidance where available, and European or international guidance where there is no UK equivalent.

The standards support health professionals, commissioners, decision-makers, managers and adults using services to be clear about the care that should be provided. Measures and examples of evidence are provided for each quality standard to support services to audit, evaluate and improve.

Population: These standards apply to adults (men and women) in the UK, identified as being at increased risk of fragility fractures.

These standards have been prepared for the following audiences:
- Adults using osteoporosis services and their carers and families (a supporting summary is available for the general public).
- Health professionals who deliver or wish to develop osteoporosis services.
- Health professionals who are involved in any part of the fragility fracture prevention pathway.
- Commissioners/funders of osteoporosis services.
- Managers involved with service provision.

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Please send any comments on this practical guide to policy.issues@nos.org.uk

Supported by: Organisations TBC
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**Note:**

This document is a draft for consultation and was last updated in September 2017.
### Summary of Quality Standards and Criteria

<table>
<thead>
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<th>Standard Statement</th>
<th>Criteria</th>
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<tbody>
<tr>
<td><strong>Standard One: Identifying people at risk of fragility fractures</strong></td>
<td>1. Adults at increased risk of fragility fractures are actively identified by the fracture prevention pathway.</td>
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<tr>
<td></td>
<td>1.1. Adults aged 50 and over with a new fragility fracture are systematically and proactively identified.</td>
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<td>1.2. Adults aged 50 and over with a vertebral fracture are systematically and proactively identified.</td>
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<td></td>
<td>1.3. Adults with co-morbidities or taking drug therapies commonly associated with increased fracture risk are identified.</td>
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<td>1.4. Adults over 65 with a history of two or more falls in the past year are identified.</td>
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<tr>
<td><strong>Standard Two: Assessing fracture risk</strong></td>
<td>2. Investigations to assess risks of fragility fractures and falls are offered to adults identified by the fracture prevention pathway.</td>
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<td></td>
<td>2.1. Adults identified as being at increased risk of fragility fracture are offered an assessment. The assessment will include one or more of the following components:</td>
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<tr>
<td></td>
<td>a) Quality-assured axial DXA within 12 weeks from referral.</td>
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<td>b) Fracture risk assessment using FRAX or QFracture.</td>
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<tr>
<td></td>
<td>c) Relevant laboratory and imaging investigations to clarify diagnosis and inform treatment decisions.</td>
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<td></td>
<td>d) An initial assessment of falls risk.</td>
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<td></td>
<td>2.2. DXA reports are issued within 3 weeks of measurement and provide sufficient detail to support management decision making to reduce fracture risk.</td>
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<tr>
<td><strong>Standard Three: Information and support</strong></td>
<td>3. Information and support are offered to adults using the service, and their carers.</td>
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<td>a) Osteoporosis and risk factors for fracture.</td>
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<td></td>
<td>b) Lifestyle interventions including nutrition and exercise.</td>
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<td></td>
<td>c) Coping with pain and symptoms of fracture.</td>
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<td></td>
<td>d) Drug treatments for osteoporosis.</td>
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<td></td>
<td>e) Avoiding falls.</td>
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<td></td>
<td>3.2. Information is available in a range of formats and language, appropriate to the population served by the service.</td>
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<td></td>
<td>3.3. Letters from the osteoporosis service are copied to the person as well as their health professionals involved in their care.</td>
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<td>3.4. Adults are engaged in discussion and decisions made to agree their care plan.</td>
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<tr>
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<tr>
<td><strong>Standard Four: Interventions to reduce fracture risk</strong></td>
<td>4.1. Adults at high risk of fragility fracture are offered appropriate drug treatment within 5 weeks of assessment.</td>
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<td>4.2. Adults are given information about how to take drug treatments recommended for them.</td>
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<td>4.3. Adults at high risk of falling are referred to falls prevention services and offered interventions to keep them strong, steady and independent.</td>
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<td>4.4. A system is in place to ensure that people prescribed injectable drug treatments are invited to future appointments at the correct time.</td>
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<tr>
<td><strong>Standard Five: Follow-up and long-term management</strong></td>
<td>5.1. Adults starting a drug treatment for osteoporosis are assessed for adherence and adverse effects within 16 weeks of commencing therapy and then every 52 weeks thereafter.</td>
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<td>5.2. Adults having long term bisphosphonate therapy have periodic review of the risks and benefits of continuing treatment.</td>
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<tr>
<td><strong>Standard Six: Reducing pain and functional impairment after fracture</strong></td>
<td>6.1. The osteoporosis service has good links with orthopedic, physiotherapy and occupational services.</td>
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<td>6.2. Referral protocols are established between the osteoporosis service and specialist pain services.</td>
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<tr>
<td><strong>Standard Seven: Leadership, governance and professional development</strong></td>
<td>7.1. A designated lead clinician is responsible for all components of the service.</td>
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<td>7.2. A multi-disciplinary Osteoporosis Interest Group is established and meets regularly to co-ordinate, plan and develop osteoporosis and fragility fracture prevention services.</td>
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<td>7.3. The service is developed in line with the local osteoporosis and fracture prevention strategy.</td>
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<td>7.4. A quality assurance framework is in place which includes:</td>
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<td>a) Audit cycle.</td>
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<td>b) Peer review.</td>
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<td></td>
<td>c) Patient and carer experience measures.</td>
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<td>7.5. All members of the osteoporosis team have assessment of professional competencies and demonstrate Continued Professional Development.</td>
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Introduction

Osteoporosis is a long-term condition which causes bones to become fragile and break easily, often after a minor bump or fall (known as a fragility fracture). More than 3 million people in the UK are estimated to have osteoporosis and there are an estimated 500,000 new fragility fractures each year.

1 in 2 women and 1 in 5 men over the age of 50 will break a bone. Fragility fractures impact people in many ways – they can lead to social isolation, loss of independence, disability, long-term pain and premature death. 54% of people who have a vertebral fracture experience height lost or a change of body shape. People who have had a hip fracture occupy 4,000 hospital beds at any one time and 1 in 4 of them will die within a year.

The vast majority of fractures result from a fall. One third of people aged over 65 fall at least once each year and 255,000 of falls result in an emergency admission. 80% of those with a non-hip fracture aren’t offered strength and balance exercises. Yet risk assessment and falls prevention interventions reduce falls by 24%.

Fragility fractures can be prevented by taking steps to reduce fracture risk - by diagnosing and treating osteoporosis; by supporting people to make lifestyle changes to improve their bone strength; and by taking steps to improve muscle strength and balance to minimise the chances of falling.

An effective fracture prevention pathway needs good joint working between osteoporosis services, fracture liaison services, falls prevention services and primary care. By using these quality standards and engaging in audit and peer review across the pathway, high quality care can be delivered and the outcomes of adults with osteoporosis throughout the UK will be improved.

Crucially, these standards can be used by the public to gain understanding about the experiences they should expect. They provide information to help people to engage effectively with available services and receive care to meet their needs.

A summary of this document is available for people with osteoporosis or who have broken a bone, their carers and the general public.

Implementing the quality standards

Individual services can download the following templates to evaluate their pathways and support implementation of, and improvement against these quality standards.

- Self-assessment template and audit tools.
- Action plan template.
- Patient Reported Outcomes Measures template.

These standards provide the foundation for Peer Review of Osteoporosis and Metabolic Bone Services provided by the National Osteoporosis Society. For
further information and downloadable templates visit [insert link].

**Working with other guidance**

The standards contained in this document are consistent with NICE Quality Standards on Osteoporosis (QS149) but include additional information to facilitate a more detailed evaluation of the performance of fracture prevention pathways.

Osteoporosis clinical guidelines have been produced for different parts of the UK. When using these standards, local protocols should be agreed in alignment with relevant national guidelines. A full list of source guidance used to develop these standards is given at the end of this document.
**Standard One: Identifying people at risk of fragility fractures**

**Standard statement:**
Adults at increased risk of fragility fractures are actively identified by the fracture prevention pathway.

**Rationale**
Adults who have had a fragility fracture are at higher relative risk of future fracture than those who have not broken a bone. Vertebral fractures almost always mean a person requires treatment for osteoporosis.

Some diseases and drug treatments have an impact on bone strength and increase fragility fracture risk. Targeted interventions in these population will reduce fragility fractures.

**Criteria**
1.1. Adults aged 50 and over with a new fragility fracture are systematically and proactively identified.
1.2. Adults aged 50 and over with a vertebral fracture are systematically and proactively identified.
1.3. Adults with co-morbidities or taking drug therapies commonly associated with increased fracture risk are identified.
1.4. Adults over 65 with a history of two or more falls in the past year are identified.

**In Practice**
A Fracture Liaison Service (FLS) is recommended to ensure maximum identification of people who have broken a bone and may benefit from assessment and treatment to prevent future fractures. An FLS is led by a coordinator, usually a Nurse Specialist. An FLS checks everyone over the age of 50 years who has a fragility fracture. Protocols are established with Radiology departments to ensure that vertebral fractures are identified on all appropriate imaging methods and this information is clearly included on the imaging report.

Fracture risk assessment is recommended in adults with diseases or using drugs known to be associated with osteoporosis or excess fracture risk. Some common examples are listed in Table 1. An osteoporosis service can work with colleagues in Primary Care, community-based services (such as care homes) and hospital-based services (such as falls, orthopaedics, care of the elderly and oncology) to identify people at risk. Assessment is also recommended in adults with a history of falls. As most fragility fractures will happen as the result of a fall, a two-way referral pathway between osteoporosis and falls prevention services is an integral part of the pathway.
Protocols will be established to ensure that action is taken to carry out an assessment as described in Standard Three for any adult considered to be at increased fracture risk.

**Table 1:** Diseases and drugs associated with osteoporosis

<table>
<thead>
<tr>
<th>Diseases</th>
<th>Drugs</th>
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<tbody>
<tr>
<td>Inflammatory Arthritis</td>
<td>Glucocorticoids</td>
</tr>
<tr>
<td>Hyperparathyroidism</td>
<td>Aromatase Inhibitors (in women)</td>
</tr>
<tr>
<td>Inflammatory Bowel Disease</td>
<td>Androgen deprivation therapy (in men)</td>
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<tr>
<td>Malabsorption especially coeliac disease</td>
<td></td>
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<tr>
<td>Solid Organ Transplantation</td>
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</tr>
</tbody>
</table>

**What this standard means to:**

**A person receiving care**
You will be identified by the osteoporosis service if:
- You are aged 50 years or older and you have broken a bone.
- A health professional finds you have had a vertebral fracture (broken a bone in your spine). Some people can have a vertebral fracture without realizing and with no symptoms but they could benefit from medication to protect them from further broken bones in the future.
- You have an illness or are taking a medicine that means you are at greater risk of osteoporosis.

**A member of staff**
You will:
- Follow agreed protocols to ensure that people with fragility fractures or who are at increased risk of osteoporosis are identified by the service.
- Use all imaging and Radiology reports to identify people with vertebral fractures.
- Work with colleagues in other departments and specialties to establish protocols to maximize the identification of people at risk of osteoporosis.

**The organisation**
The organisation will:
- Ensure an FLS [or an equivalent model] is established with adequate leadership, staffing and administrative support. The service aspires to achieve the standards for FLS outlined in 'Effective Secondary Prevention of fragility fractures: clinical standards for FLS'.
- Have procedures to ensure that people with risk factors of osteoporosis are identified, including two-way referral pathways between relevant departments and the osteoporosis service.
- Have procedures in place to ensure all imaging technologies are used to identify vertebral fractures and where these are identified they are clearly included in Radiology reports.
Examples of evidence of achievement

- Systems are in place to ensure that adults who have had a fragility fracture are systemically identified, ideally through a comprehensive Fracture Liaison Service.
- Systems are in place to identify those who have had a vertebral fracture and a standard approach is taken to recording this information in imaging reports.
- Systems are in place to ensure that adults with risk factors for fragility fracture are identified.
- Systems are in place to identify adults who have had a fragility fracture regardless of the time or date that the patient presents, with adequate cover for periods of planned or unplanned leave.

Data and audit

a) **Proportion of adults with a fragility fracture identified** – Numerator – the number of adults with fragility fractures identified by the service. Denominator – estimated total number of fragility fractures for the service (estimated by multiplying total hip fractures in over 50 year olds by a factor of 5\(^1\)).

*Data source:* The Fracture Liaison Service Database (FLS-DB) collects data on adults who have sustained a fragility (non-hip, non-vertebral) fracture for England and Wales. For non-participating sites, local data collection or population estimates.

b) **Proportion of adults referred to the osteoporosis service from the falls prevention service** – Numerator – number of adults referred from the falls prevention service. Denominator – total adults seen by the service with a history of 2 or more falls per year.

c) **Incidence of fragility fractures**

*Data source:* The Fracture Liaison Service Database (FLS-DB) collects data on adults who have sustained a fragility (non-hip, non-vertebral) fracture for England and Wales. For non-participating sites, local data collection or population estimates.

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Standard Two: Assessing fracture risk

**Standard statement:**
Investigations to assess risks of fragility fractures and falls are offered to adults identified by the fracture prevention pathway.

**Rationale**
Comprehensive assessment of adults at increased risk of a fragility fracture enables health professionals to target interventions and make informed treatment decisions to reduce future fracture risk. Timely issue of reports minimises the delay in commencement of treatment and investigation of incidental findings such as suspicion of vertebral fracture.

**Criteria**
2.1. Adults identified as being at increased risk of fragility fracture are offered an assessment. The assessment will include one or more of the following components:
   a) Quality-assured axial DXA within 12 weeks from referral.
   b) Fracture risk assessment using FRAX or QFracture.
   c) Relevant laboratory and imaging investigations to clarify diagnosis and inform treatment decisions.
   d) An initial assessment of falls risk in adults aged 65 or over with a history of falls.

2.2. DXA reports are issued within 3 weeks of measurement and provide sufficient detail to support management decision making to reduce fracture risk.

**In practice**
**DXA:** DXA provides information to support treatment decisions, alongside fracture risk assessment tools. Information from a DXA scan will indicate whether further assessment by a specialist osteoporosis service is needed as well as providing a baseline measurement for evaluation of response to treatment in the future.

**Fracture risk assessment tools:** FRAX or QFracture are the recommended online tools for use in the UK. Access to treatment may be determined by local and national guidance based on absolute risk and/or BMD T-score.

**Blood tests:** Blood tests will help unmask conditions other than primary osteoporosis that present with low BMD or fractures and identify underlying causes of bone loss which might need to be treated. Routine and special circumstances blood tests will include those listed below:

**Standard Tests**
- Full blood cell count (FBC)
- Erythrocyte sedimentation rate (ESR) or C-reactive protein
- Serum calcium, albumin & phosphate
- Serum creatinine and eGFR
<table>
<thead>
<tr>
<th>Alkaline phosphatase and liver transaminases</th>
<th>Thyroid function tests</th>
<th>Serum 25-hydroxyvitamin D</th>
<th>Special Circumstances</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serum protein immunoelectrophoresis and urinary Bence Jones proteins</td>
<td>Plasma parathyroid hormone</td>
<td>Serum testosterone, sex hormone binding globulin, follicle stimulating hormone, luteinizing hormone</td>
<td>Endomysial and/or tissue transglutaminase antibodies</td>
</tr>
</tbody>
</table>

**Use of imaging:** presence of vertebral fractures indicates a greater chance of future fractures and may influence the right choice of treatment for an individual. Vertebral Fracture Assessment (VFA) can be carried out with DXA. X-ray may be needed to confirm suspected vertebral fractures found via VFA or in those at high risk of clinical vertebral fracture. Any available imaging is reviewed wherever possible before additional imaging is carried out.

**Falls assessment:** In most cases, a fragility fracture will result from a fall. A history of falls in the last year is the single most important risk factor for falls and predicts future falls. People attending the osteoporosis service are asked about their falls history and where appropriate they are referred to falls prevention services for a full multifactorial risk assessment and tailored interventions to keep them strong, steady and independent.

**Reports:** Reports include sufficient information to support development of a management plan and treatment decisions. Reports are shared with the patient as well as all relevant health professionals including the GP.

**What this standard means to:**

**A person receiving care**

You will:
- Be offered a comprehensive assessment covering all aspects of bone health. The information gathered will inform discussions between you and your health professionals and decisions about what can be done to help reduce your risk of breaking a bone in the future.
- Be asked about whether you have fallen in the last 12 months. If so you will be invited to meet health professionals who can help you stay strong, steady and independent.
- Receive a copy of the report prepared by the health professionals who assess you.

**A member of staff**

You will:
- Carry out a comprehensive assessment covering all aspects of bone health, including DXA, fracture risk assessment, blood tests and review of imaging.
- Ask whether the person has fallen in the last 52 weeks and refer them to falls prevention services for further assessment where needed.
- Produce high quality DXA reports that support treatment decisions and indicates whether further assessment is needed.
• Share reports with relevant health professionals including the GP, as well as the person who has been scanned.

**The organisation**
The organisation will:
• Have two-way referral protocols between osteoporosis and falls services.
• Ensure sufficient quality-assured axial DXA scanning is available for the population it serves.

**Examples of evidence of achievement**
• Locally agreed protocols which are based on relevant national guidance are in place and being followed consistently.
• Arrangements to ensure that all adults who have fractured or have risk factors have a comprehensive assessment.
• Compliance with IR(ME)R.
• Standard operating procedures are in place for patient positioning and analysis of DXA.
• Machines are properly maintained and calibrated according to manufacturers’ recommendations, including daily quality assurance and scheduled servicing.
• A documented process for onward referral for imaging following VFA.
• Established clinical evaluation audit cycle under IR(ME)R.
• Established scan-report procedure and audit cycle.
• DXA reporting guidance and template report.

**Data and audit**

a) **Proportion of identified adults who have an assessment of their fracture risk** - Numerator – adults who have an assessment of their fracture risk. Denominator – total number of adults identified.

*Data source:* Data on adults who have sustained a fragility fracture is collected by the Fracture Liaison Service Database (FLS-DB) for England and Wales. For non-participating sites and for data on patients who have not fractured, local data collection or population estimates will be required.

b) **Proportion of adults in contact with the osteoporosis service who receive a falls risk assessment** – Numerator – adults who receive a falls assessment. Denominator – all adults seen by the service.

*Data source:* Data on adults who have sustained a fragility fracture is collected by the Fracture Liaison Service Database (FLS-DB) for England and Wales. For non-participating sites and for data on patients who have not fractured, local data collection or population estimates will be required.

c) **10% of scans included in clinical evaluation audit with 100% compliance** –
Data source: Local data collection

d) **Number of DXA reports completed within 3 weeks of measurement**
   - Numerator – the number of in the denominator which have reports completed within 3 weeks of measurement. Denominator – total number of DXA scans carried out.

Data source: Local data collection
Standard Three: Information and support

**Standard statement:**
Information and support are offered to adults using the osteoporosis service, and their carers.

**Rationale**
The ‘patient as partner’ model requires that the individual is informed and part of every decision made. People are more likely to engage with their management plan if they understand osteoporosis, the causative factors, and the treatments available. Positive actions patients can take for themselves include prevention and mitigation measures, and adherence to long-term treatment when this is advised.

**Criteria**
3.1. Adults and their carers are offered relevant information about:
   a) Osteoporosis and risk factors for fracture.
   b) Lifestyle interventions including nutrition and exercise.
   c) Coping with pain and symptoms of fracture.
   d) Drug treatments for osteoporosis.
3.2. Information is available in a range of formats and language, appropriate to the population served by the service.
3.3. Correspondence from the service is copied to the person as well as the health professionals involved in their care.
3.4. Adults are engaged in discussion and decisions made to agree their care plan.

**In practice**
The information needs of all people coming in to contact with an osteoporosis service are considered, including those who do not yet require drug treatments. It is important that information is available in a range of formats and languages so that individual needs are met. This can include one to one discussion, group information sessions, leaflets, recordings, video, websites and telephone helplines. Written information is helpful to reinforce information given face to face and to support later conversations between the patient and their family, friends and carers.

People are encouraged to ask questions and to think about their short-term and long-term goals to inform their care plan. Sufficient time is allowed to facilitate this two way discussion.

**What this standard means to:**

**A person receiving care**
You will:
- Feel informed and supported.
- Be given an opportunity to ask questions, discuss options and participate in decisions about your care.
• Understand about your bone health and what you can do to keep your bones strong.
• Understand about the benefits and side effects of treatments recommended for you.
• Receive contact information for your osteoporosis service and/or other regional and national charities including the National Osteoporosis Society that can give you more information and support after you have returned home.
• Be given information in the format that best suits you.

A member of staff
You will:
• Allow time for people to ask questions, discuss options and participate in decision making.
• Reinforce the information you give verbally with other formats where appropriate.
• Provide information on bone health to everyone coming through the service.
• Provide information on treatment options including the benefits and side effects.
• Ensure that people have contact information for the service and/or regional and national charities including the National Osteoporosis Society that can offer further information and support.
• Tailor the information you give to meet the needs of the individual.

The organisation
The organisation will:
• Hold information in a range of formats and languages suitable for the population it serves.
• Provide sufficient time in appointments to enable discussion between people and their health professional
• Offer regular education sessions to give information and support to people at risk of fractures.

Examples of evidence of achievement
• Details of information about osteoporosis and bone health offered by the service and the range of formats available.
• Evidence that information is provided to patients.
• Patient reported outcomes are regularly measured, analyzed, reviewed and acted upon.
• Results of satisfaction surveys and actions taken to resolve any issues highlighted.
• Details of education sessions held, how they are promoted and numbers attending.

Data and audit
a) Proportion of adults given information during a discussion with health professional – Numerator – adults given information during a...
discussion with their health professional. Denominator – total number of adults attending the service

*Data source:* Local data collection

b) **Proportion of adults given written information** – Numerator – adults given written information during a discussion with their health professional. Denominator – total number of adults attending the service.

*Data source:* Local data collection

c) **Proportion of adults who felt there was sufficient time at their appointment to ask all the questions they wanted to** – Numerator – adults who felt the appointment was long enough. Denominator – total number of adults completing patient reported outcomes measure questionnaire.

*Data source:* Local data collection.

d) **Proportion of adults who felt the practitioner listened to them and who felt involved in all decisions about their care and treatment** – Numerator – adults who felt listened to and involved in decision making. Denominator – total number of adults completing patient reported outcomes measure questionnaire.

*Data source:* Local data collection.

e) **Proportion of adults who know who to contact if they have any questions about their care after their appointment** – Numerator – adults who knew who to contact after the appointment. Denominator – total number of adults completing patient reported outcomes measure questionnaire.

*Data source:* Local data collection.
Standard Four: Interventions to reduce fracture risk

**Standard statement:**
Interventions to reduce the risk of fragility fractures are offered to adults who need them.

**Rationale**
Among those with osteoporosis and who are at increased risk of future fracture, evidence-based actions are taken to minimise this risk. This includes consideration of falls and bone health interventions. Drug treatments have been shown to significantly reduce bone loss and reduce the risk of future fractures. Multifactorial falls prevention help keep people strong and steady, reducing their chances of falling again.

**Criteria**

4.1. Adults at high risk of fragility fracture are offered appropriate drug treatments within 5 weeks of assessment.

4.2. Adults are given information about how to take drug treatments recommended for them.

4.3. Adults at high risk of falling are referred to falls prevention services and offered interventions to keep them strong, steady and independent.

4.4. A system is in place to ensure that people prescribed injectable drug treatments are invited to future appointments at the correct time.

**In practice**
Following assessment, appropriate interventions will be agreed for an individual through discussion between them and their health professional.

**Drug treatments:** Drug treatments have been shown to significantly reduce bone loss and reduce the risk of future fractures. Cost effectiveness of treatments is assessed by NICE and the Scottish Medicines Consortium. National guidance NICE, SIGN and NOGG inform decisions on the effective use of osteoporosis treatments. The thresholds for interventions vary between guidance and these are summarised for bisphosphonates and denosumab in Table 2. Consequently, Osteoporosis Services will have their own protocol based on the geographic boundaries of their service. All services will have protocols for use of adjunctive therapy calcium and vitamin D therapy.
Table 2: Treatment Thresholds for post-menopausal as advised by the National Osteoporosis Guideline Group (NOGG 2017), the Scottish Integrated Guideline Network (SIGN 142 – Management of osteoporosis and the prevention of fragility fractures 2013), and the National Institute for Health and Care Excellence (NICE TA204 2010 and NICE TA464 2017)

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<tbody>
<tr>
<td><strong>Vertebral Fracture</strong></td>
<td>Treatment with oral bisphosphonate if 10-year probability of fracture at least 1% Intravenous Bisphosphonates can be used in those with • 10-year probability of fracture is at least 10% or 10-year probability of fracture is at least 1% and the oral bisphosphonates are not tolerated, contraindicated or cannot be taken by patient</td>
<td>Proceed to risk assessment using FRAX Treatment can be initiated in women without DXA assessment, although may be appropriate in some</td>
<td>DXA preferable but therapy can be commenced in men and women with prevalent vertebral fractures</td>
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<td><strong>Hip Fracture</strong></td>
<td>Treatment with oral bisphosphonate if 10-year probability of fracture (FRAX or QFracture) at least 1% Intravenous Bisphosphonates can be used in those with • 10-year probability of fracture of at least 10% or 10-year probability of fracture is at least 1% and the oral bisphosphonates are not tolerated, contraindicated or cannot be taken by patient</td>
<td>FRAX followed by DXA if NOGG algorithm requires. Treatment can be initiated in women without DXA, although may be appropriate in some</td>
<td>DXA followed by oral bisphosphonates if T-score at spine or hip ≤ -2.5 If DXA unavailable or not feasible proceed to iv zoledronic acid</td>
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<tr>
<td><strong>Other Fracture</strong></td>
<td>Treatment with oral bisphosphonate if 10-year probability of fracture (FRAX or QFracture) at least 1% Intravenous Bisphosphonates can be used in those with • 10-year probability of fracture of at least 10% or 10-year probability of fracture is at least</td>
<td>FRAX followed by DXA if NOGG algorithm requires. Treatment can be initiated in women without DXA assessment, although may be appropriate in some</td>
<td>DXA followed by oral bisphosphonates if T-score at spine or hip ≤ -2.5 If DXA unavailable or not feasible proceed to iv zoledronic acid</td>
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1% and the oral bisphosphonates are not tolerated, contraindicated or in those who cannot comply with the special instructions for administration

| Prevalent Clinical Risk Factors | Treatment with oral bisphosphonate if 10-year probability of fracture is at least 1% Intravenous Bisphosphonates can be used in those with • 10-year probability of fracture is at least 10% 10-year probability of fracture is at least 1% and the oral bisphosphonates are not tolerated, contraindicated or cannot be taken by patient | In men and women FRAX followed by use of NOGG variable thresholds up to age 70 regardless of DXA T-score Over age 70 treatment can be given if major osteoporotic fracture risk ≥20% or hip fracture risk ≥ 5% regardless of DXA T-score | If QFracture (preferred) or FRAX assessment 10-year Fracture Risk >10% proceed to DXA Proceed to treatment if 10-year fracture risk is ≥10% and DXA T-score at spine or hip ≤ -2.5 |

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<td>Prevalent Fractures or Clinical Risk Factors</td>
<td>Can be prescribed in post-menopausal over the age of 65 in whom the oral bisphosphonates are not tolerated, contraindicated or in those who cannot comply with the special instructions for administration and have variable numbers of clinical risk factors and have DXA T-scores from -3.0 to -4.5.</td>
<td>As per bisphosphonates</td>
<td>Proceed to treatment if 10-year fracture risk is ≥10% and DXA T-score at spine or hip ≤ -2.5 and unable to tolerate or poor response to oral bisphosphonates</td>
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**Continuation of injectable drug treatments:** Currently not everyone who is given an injectable drug treatment are offered their future doses. This affects the safety and efficacy of these treatments. For example, denosumab is administered every 6 months, and treatment must be given between 5 and 7 months after the last injection. If treatment is not repeated then people lose the benefits of the treatment and may be at increased of risk of fracture.

This risk can be overcome by compiling a register of adults who have been recommended an injectable treatment. It is imperative that they are recorded on a register to guarantee they are offered a future appointment at the correct time.
**Falls prevention:** the osteoporosis service will have strong links and two way referral protocols to falls prevention services. This will ensure that those needing support to stay strong, steady and independent are referred and appropriate interventions agreed to reduce their risk of falling.

### What this standard means to:

#### A person receiving care
You will:
- Be given an opportunity to ask questions, discuss options and participate in decisions about your care.
- Understand the benefits and side effects of treatment, if this is recommended for you.
- Understand the instructions for taking your treatment and the reasons these are important.
- Take treatments as directed by your health professional and speak to your GP if you have any difficulties or concerns.
- Be invited to meet health professionals who can help you stay strong, steady and independent if you have fallen more than twice in the last 12 months.

#### A member of staff
You will:
- Allow time for people to ask questions, discuss options and participate in decision making.
- Reinforce the information you give verbally with other formats where appropriate.
- Provide information on treatment options including the benefits and side effects.
- Explain how the recommended treatment is taken and why these instructions are important.
- Explain when treatment will be reviewed. To support compliance and assess for side effects, new treatments are followed up at 16 weeks (often by phone), and every 52 weeks thereafter.

#### The organisation
The organisation will:
- Have a robust system to ensure that people initiated on an injectable treatment receive the next dose at the right time.
- Have capacity to offer follow up appointments (telephone and/or face to face) at 16 weeks and every 52 weeks after the initiation of a new drug treatment.

### Examples of evidence of achievement
- Referral pathways are in place between the osteoporosis service and falls prevention services.
- A system is in place to ensure that people initiated on an injectable treatment receive the next dose at the right time.
Data and audit

a) Proportion of adults at high risk of fracture offered a drug treatment within 5 weeks of assessment – Numerator – Number of adults offered a drug treatment within 5 weeks. Denominator – total number of adults at high risk of fracture.

Data source: The Fracture Liaison Service Database (FLS-DB) collects data on adults who have sustained a fragility fracture for England and Wales. For non-participating sites, local data collection or population estimates.

b) Proportion of adults identified by the osteoporosis service who are referred for falls prevention interventions – Numerator – adults referred to falls prevention services. Denominator – number of adults identified.

Data source: The Fracture Liaison Service Database (FLS-DB) collects data on adults who have sustained a fragility fracture for England and Wales. For non-participating sites, local data collection.

c) Proportion of adults receiving second dose of injectable drug treatment – Numerator – Number of adults receiving their second dose of an injectable drug treatment. Denominator – Number of adults receiving their first dose of an injectable drug treatment.

Data source: Local data collection

d) Reduction in falls in care settings

Data source: The National Audit of Inpatient Falls collects data on falls in care settings for England and Wales. For non-participating sites, local data collection.

e) Reduction in emergency admissions following falls

Data source: Local data collection

f) Incidence of fragility fractures

Data source: The Fracture Liaison Service Database (FLS-DB) collects data on adults who have sustained a fragility fracture for England and Wales. For non-participating sites, local data collection or population estimates.
Standard Five: Follow-up and long-term management

Standard statement:
Adults who are recommended a drug treatment for osteoporosis are asked about adverse effects and adherence to treatment, and a long-term treatment review is carried out.

Rationale
Like many long-term conditions, drug treatments for osteoporosis must be taken consistently and correctly over many years to be effective. Approximately half of adults initiated on a drug treatment do not follow treatment as prescribed, for example, failing to meet the instructions for taking the medication or not continuing to take the treatment. Follow up appointments help support adults to take drug treatments correctly and for the long-term.

Concerns over rare consequences of long-term bisphosphonate use (particularly atypical femoral fracture and osteonecrosis of the jaw) mean it is appropriate to schedule a long-term drug treatment review to consider the risks and benefits of continued treatment.

Criteria
5.1. Adults starting a drug treatment for osteoporosis are assessed for adherence and adverse effects within 16 weeks of commencing therapy and then every 52 weeks thereafter.
5.2. Adults having long-term bisphosphonate therapy have periodic review of the risks and benefits of continuing treatment.

In practice
Where drug treatments are initiated in secondary care, the care plan is shared with the patient’s GP so they can support long-term care. Reviews can be carried out by health professionals in either primary or secondary care, by face to face appointment or by telephone. A no-blame approach is adopted.

Follow up at 12 and every 52 weeks thereafter allows identification of issues (such as side effects of treatment or difficulties with treatment compliance), reinforces the need to continue to take treatment and supports long-term engagement of the individual in their management plan.

A long-term treatment review to consider the risks and benefits of continued treatment for adults is given following 3 years with injectable treatments and following 5 years with oral treatments. Depending on the outcome of this review, treatment may be continued up to 10 years or a short treatment break may be recommended. Where a break is agreed, suitable recall processes are needed to ensure that adults who need a reassessment are invited back after the agreed time period (usually 18 months to 3 years) or through an FLS if the individual breaks a bone.

What this standard means to:
A person receiving care
You will:
• Speak to your GP straight away if you have any difficulties or concerns with your treatment.
• Understand when you next need to speak to a health professional to review the treatment recommended for you. This might be by phone or at an appointment with your GP or at the hospital.
• Be asked how you are getting on with your recommended a drug treatment after 4 months and every year after that.
• Have your fracture risk reassessed after 3 or 5 years to check that your treatment is still right for you.

A member of staff
You will:
• Allow time for people to ask questions, discuss options and participate in decision making.
• Provide information on treatment options including the benefits and side effects.
• Explain how the recommended treatment is taken.
• Explain when treatment will be reviewed. To support compliance and assess for side effects, new treatments are followed up at 16 weeks (often by phone), and every 52 weeks thereafter.
• Reinforce the information you give verbally with written information and/or other formats where appropriate.

The organisation
The organisation will:
• Have capacity to offer follow up appointments (telephone and/or face to face) at 16 weeks after the initiation of a new drug treatment and every 52 weeks thereafter.
• Have systems and capacity to offer a comprehensive treatment review after 3 years for injectable drug treatments and 5 years for oral drug treatments.
• Have clear protocols in place detailing when reviews take place and by which staff.

Examples of evidence of achievement
• A system is in place to review all adults on treatment at 16 weeks and evidence that adults recommended treatments have been contacted.
• A system is in place to review all adults on treatment every 52 weeks and evidence that adults recommended treatments have had follow up appointments.
• A system is in place to review adults following 3 years with an injectable drug treatments and following 5 years with oral drug treatments, and evidence that adults have received a long-term treatment review.

Data and audit
a) Proportion of adults reviewed at 16 weeks – Numerator – number of adults participating in a review at 16 weeks. Denominator – number of adults recommended a drug treatment.
Data source: The Fracture Liaison Service Database (FLS-DB) collects data on adults who have sustained a fragility (non-hip, non-vertebral) fracture for England and Wales. For non-participating sites, local data collection.

b) Proportion of adults adherent to treatment at 16 weeks –
Numerator – number of adults adherent to treatment at 16 weeks.
Denominator – Number of adults participating in a review at 16 weeks.

Data source: The Fracture Liaison Service Database (FLS-DB) collects data on adults who have sustained a fragility (non-hip, non-vertebral) fracture for England and Wales. For non-participating sites, local data collection.

c) Proportion of adults reviewed at 52 weeks – Numerator – number of adults participating in a review at 52 weeks. Denominator – number of adults recommended a drug treatment.

Data source: The Fracture Liaison Service Database (FLS-DB) collects data on adults who have sustained a fragility (non-hip, non-vertebral) fracture for England and Wales. For non-participating sites, local data collection.

d) Proportion of adults adherent to treatment at 52 weeks –
Numerator – number of adults adherent to treatment at 52 weeks.
Denominator – Number of adults participating in a review at 52 weeks.

Data source: The Fracture Liaison Service Database (FLS-DB) collects data on adults who have sustained a fragility (non-hip, non-vertebral) fracture for England and Wales. For non-participating sites, local data collection.


Data source: Local data collection.
Standard Six: Preventing pain and functional impairment after fracture

**Standard statement:**

Adults who have a fragility fracture are offered interventions to reduce pain and functional impairment.

**Rationale**

Most fractures will result in pain and limit what a person is able to do in the short term. In some cases, especially after vertebral fractures, these effects can be long lasting and lead to chronic pain and disability. Good pain management and rehabilitation are offered to support the individual to regain their previous levels of function and to manage pain. This will maximise recovery, confidence to live independently and quality of life, and minimise long term implications.

**Criteria**

- 6.1. Adults who have had a fragility fracture are assessed for their level of pain and functional impairment
- 6.2. Adults who have had a fragility fracture are offered interventions as appropriate to reduce their pain and functional impairment.
- 6.3. The osteoporosis service has access to orthopedic, physiotherapy and occupational health services.
- 6.4. Referral protocols are established between the osteoporosis service and specialist pain services.

**In practice**

Most acute fractures are painful and cause immediate functional impairment – management is usually provided by local Accident and Emergency and Orthopaedic Departments with appropriate input from physiotherapy and occupational therapy service.

Local osteoporosis services need to have access to local chronic pain clinics and rehabilitation services.

**What this standard means to:**

**A person receiving care**

You will:

- Discuss your pain and previous levels of ability, and agree goals for your recovery in discussion with your health professionals.
- Be supported to recover to your previous levels of ability as far as possible.
- Given help to manage pain resulting from your fracture.
- Be offered physiotherapy if you need it and show a commitment to doing the exercises recommended for you between appointments.

**A member of staff**

You will:
- Assess pain and levels of function.
- Set goals for rehabilitation in discussion with the person.
- Make appropriate referrals to rehabilitation services, physiotherapy and occupational therapy to support the achievement of agreed goals.
- Offer pain relief and make referrals to specialist pain management services where needed.

**The organisation**

The organisation:
- Has adequate provision for rehabilitation, occupational therapy and physiotherapy to meet the needs of people who have fractured.
- Has referral pathways from the osteoporosis service into specialist pain management services.

**Examples of evidence of achievement**

- Referral protocols are in place between the osteoporosis service and specialist pain management services.
- Referral protocols are in place between the osteoporosis service and rehabilitation services.

**Data and audit:**

a) **Proportion of adults with fragility fractures offered pain management** – Numerator – number of adults offered pain management. Denominator – total number of adults assessed.

*Data source:* Local data collection.

b) **Proportion of adults with fragility fractures referred to pain management services** – Numerator – number of adults referred to pain management services. Denominator – total number of adults assessed.

*Data source:* Local data collection.

c) **Proportion of adults referred to rehabilitation services** – Numerator – number of adults referred to rehabilitation services. Denominator – total number of adults assessed.

*Data source:* Local data collection.

d) **Proportion of adults with fracture discharged to their previous place of residence** – Numerator number of adults discharged to their previous place of residence. Denominator - Denominator – total number of adults assessed.

*Data source:* The National Hip Fracture Database (NHFD) collects data on place of discharge for adults with hip fractures for England and Wales. For non-participating sites and other fracture types, local data collection.
e) **Proportion of adults given a community support package** -
Numerator number of adults given a community support package.
Denominator - Denominator – total number of adults assessed.

*Data source:* Local data collection.
Standard Seven: Leadership, governance and professional development

**Standard statement:**
The fracture prevention pathway has joined up leadership that demonstrates clinical accountability, effective governance and robust professional development.

**Rationale**
Leadership, governance, professional accountability and staff development are essential to providing an efficient, coordinated and consistent service which meets the needs of its patients. Regional variation in care is minimised through audit and peer support.

Continuous professional development is embedded in all aspects of health care delivery. Maintaining contemporary knowledge is essential to delivering high quality services that meet current standards.

**Criteria**
7.1. A designated lead clinician is responsible for all components of the service.
7.2. A multi-disciplinary Fracture Prevention Interest Group is established and meets regularly to co-ordinate, plan and develop osteoporosis and fragility fracture prevention services.
7.3. The service is developed in line with the local osteoporosis and fracture prevention strategy.
7.4. A quality assurance framework is in place which includes:
   a) Audit cycle.
   b) Peer review.
   c) Patient and carer experience measures.
7.5. All members of the osteoporosis team have assessment of professional competencies and demonstrate Continued Professional Development.

**In practice**
In complex clinical systems, it is important to have clear lines of responsibility to ensure that the system works most effectively for the benefit of patients. A designated clinical lead will drive improvement and ensure that all components of the service are connected. Regular virtual or face to face meetings of a multi-disciplinary Fracture Prevention Interest group plans service development; provides peer support; and facilitates the sharing of standardised, high quality care across a region.

Being open to learn from others allows health professionals to remain up to date and to recognise areas for improvement in their service. Audit allows benchmarking and regular measurement of performance against national or local standards. Outcomes of audits show areas for improvement and when addressed in a positive manner via peer review and peer support they facilitate service development.
In addition to these formal mechanisms, local networks of expertise are important in developing services at a sub-regional level. Building networks to share understanding and recognise each other’s strengths is important to ensure optimal patient care.

What this standard means to:

A person receiving care
You will:

- Experience a seamless, interconnected service.
- Receive good quality care that meets current guidance and reflects up-to-date practice from all the health professionals you see.
- Receive care from motivated staff with the right knowledge and skills for their role.
- Be able to make informed decisions about your care.

A member of staff
You will:

- Feel supported and motivated.
- Be able to demonstrate competencies relevant to your role.
- Have formal and informal opportunities to develop your knowledge and skills.
- Carry out audits relevant to your area of work.
- Be a member of the Osteoporosis Interest Group.
- Be able to question practice and discuss different approaches to care.

The organisation
The organisation will:

- Have networks in place to support development of the service and sharing of knowledge an Osteoporosis Interest Group which oversees the development of care.
- Carry out regular audit, reviews the results and seeks to continually develop and improve.
- Have a professional accountability framework with clear lines of responsibility.
- Benchmark the service locally and nationally.

Examples of evidence of achievement

- Completed audit cycles demonstrating effective high quality running of the service.
- Leadership, managerial and governance structure identified within the service.
- Service and system change as a result of the audits.
- Peer review documentation from most recent peer review.
- Attendance at accredited and relevant courses, conferences or meetings.
- Completion of online training resources.
- Osteoporosis interest group membership list, typical agendas, minutes and meeting dates.
- Details of public and patient involvement in service development.

**Data and audit**

a) **Proportion of staff achieving accreditation relevant to osteoporosis** – Numerator – number of staff achieving accreditation relevant to their role. Denominator – total staff.

   *Data source:* Local data collection

b) **Proportion of DXA operators with Bone Densitometry Training Scheme certification** – Number of DXA operators who have achieved certification. Denominator – Total DXA operators.

   *Data source:* Local data collection

c) **Proportion of staff achieving sufficient CPD** – Numerator – Number of staff with sufficient CPD. Denominator – Total staff.

   *Data source:* Local data collection

d) **Proportion of staff completing satisfactory annual appraisals** – Numerator – Number of staff with satisfactory annual appraisals. Denominator – Total staff.

   *Data source:* Local data collection

e) **Benchmark against quality standards for osteoporosis and prevention of fragility fractures** – Numerator – number of criteria met. Denominator – total number of criteria.

   *Data source:* Local data collection

f) **Improvement against quality standards for osteoporosis and prevention of fragility fractures** – Numerator – number of criteria met. Denominator – number of criteria met in last audit.

   *Data source:* Local data collection
Source guidance

The standards outlined in this document are derived from the following sources:

A guide to understanding the implications of the Ionising Radiation (Medical Exposure) Regulations in diagnostic and interventional radiology, the Society and college of Radiographers, British Institute of Radiology and the Royal College of Radiologists 2015
https://www.rcr.ac.uk/sites/default/files/bfcr152_irmer.pdf

A structure for reporting duel energy X-ray absorptiometry scans at the hip and spine in adults, National Osteoporosis Society 2012
https://nos.org.uk/media/98109/a-structure-for-reporting-dual-energy-x-ray.pdf

Bisphosphonates for treating osteoporosis: Technology appraisal guidance (TA464), National Institute for Health and Care Excellence 2017
https://www.nice.org.uk/guidance/ta464

Clinical Guidance for the Effective Identification of Vertebral Fractures, National Osteoporosis Society [publication pending]

Competency Framework For Fracture Prevention Practitioners, National Osteoporosis Society 2016

Denosumab for the prevention of osteoporotic fractures in postmenopausal women: Technology appraisal guidance (TA204), National Institute for Health and Care Excellence 2010
www.nice.org.uk/guidance/ta204

Denosumab (Prolia) SMC Advice, Scottish Medicines Consortium December 2010
https://www.scottishmedicines.org.uk/SMC_Advice/Advice/651_10_denosumab_Prolia/denosumab_Prolia

Effective Secondary Prevention of Fragility Fractures: Clinical Standards for Fracture Liaison Services, National Osteoporosis Society 2015
https://staging.nos.org.uk/media/1776/clinical-standards-report.pdf

Falls and fracture consensus statement: Supporting commissioning for prevention, Public Health England 2017

Falls and fracture consensus statement: Resource pack, Public Health England 2017
Falls in older people: assessing risk and prevention Clinical guideline (CG161), National Institute for Health and Care Excellence 2013
www.nice.org.uk/guidance/cg161

Falls in older people: Quality standards (QS86), National Institute for Health and Care Excellence 2017
https://www.nice.org.uk/guidance/qs86

Guidelines for the provision of a clinical bone densitometry service, National Osteoporosis Society 2015
https://nos.org.uk/media/2070/provision-of-a-clinical-bone-densitometry-service.pdf

IOF Global Patient Charter, International Osteoporosis Foundation

Ionising Radiation (Medical Exposure) Regulations 2000, Department of Health 2012

2015 ISCD Official Positions – Adult

Making the case for information: the evidence for investing in high quality health information for patients and the public, Patient Information Forum 2013

Management of pain in older people, Age and Ageing, Volume 42, Issue suppl_1, 1 March 2013

NHS Rightcare Intelligence Pathway for falls and fracture prevention, NHS Rightcare [publication pending]

NOGG 2017: Clinical guideline for the prevention and treatment of osteoporosis, National Osteoporosis Guideline Group 2017
https://www.sheffield.ac.uk/NOGG/NOGG%20Guideline%202017.pdf

Osteoporosis Quality Standards (QS149), National Institute for Health and Care Excellence 2017
www.nice.org.uk/guidance/qs149

Patient experience in adult NHS services: improving the experience of care for people using adult NHS Services Clinical Guideline (CG138), National Institute for Health and Care Excellence 2012
https://www.nice.org.uk/guidance/cg138
Reporting duel energy X-ray absorptiometry scans in adult fracture risk assessment, National Osteoporosis Society 2011

http://www.gov.scot/Publications/2014/04/2038/3

SIGN 136: Management of Chronic Pain, Scottish Intercollegiate Guidelines Network 2013
http://www.sign.ac.uk/assets/sign136.pdf

SIGN 142: Management of Osteoporosis and the prevention of Fragility Fractures, Scottish Intercollegiate Guidelines Network 2015
http://www.sign.ac.uk/assets/sign142.pdf

Teriparatide (Forsteo) SMC Advice, Scottish Medicines Consortium December 2003
https://www.scottishmedicines.org.uk/SMC_Advice/Advice/Teriparatide__Forsteo__174__

Vitamin D and bone health: A practical clinical guideline for patient management, National Osteoporosis Society 2013

WHO Scientific group on the assessment of osteoporosis at primary health care level, World Health Organisation May 2004
http://www.who.int/chp/topics/Osteoporosis.pdf

About us (back page)
The National Osteoporosis Society is the only UK-wide charity dedicated to improving the diagnosis, prevention and treatment of osteoporosis. The charity works to:

- Provide a range of information resources including leaflets on all aspects of osteoporosis for health professionals and the public, some of which can be orders in quantities for use in health care settings
- Provide a helpline staffed by nurses with specialist knowledge of osteoporosis and bone health
- Raise money to fund important research
- Influence government and campaign to improve and maintain essential services
- Host a major UK Scientific conference on osteoporosis for health professionals

Find out more about our information, support and services, visit our website:
www.nos.org.uk