

# Quality Standards for Osteoporosis and Prevention of Fragility Fractures

## 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, their carers and families.
- 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 [clinical@nos.org.uk](mailto:clinical@nos.org.uk)

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### Supported by:



## Summary of quality standards and criteria

The seven quality standards described in this document are summarised below. Please refer to the section for each standard for context and further information.

| Standard Statement   | Criteria   |
|--|--|
| <b>Standard One: Identifying people at risk of fragility fractures</b>   |  |
| Adults at increased risk of fragility fractures are actively identified by the fracture prevention pathway.                          | <ol style="list-style-type: none"> <li>1.1. Adults aged 50 or over with a new fragility fracture are systematically and proactively identified.</li> <li>1.2. Adults aged 50 or over with a vertebral fracture are systematically and proactively identified.</li> <li>1.3. Adults with co-morbidities or taking drug therapies commonly associated with increased fracture risk are identified.</li> <li>1.4. Adults aged 65 or over with a history of two or more falls in the past year are identified.</li> </ol>  |
| <b>Standard Two: Assessing fracture risk</b>   |  |
| Investigations to assess risks of fragility fractures and falls are offered to adults identified by the fracture prevention pathway. | <ol style="list-style-type: none"> <li>2.1. Adults identified as being at increased risk of fragility fracture are offered an assessment. This will include an initial assessment of falls risk in adults aged 65 or over <i>and</i> one or more of the following components: <ul style="list-style-type: none"> <li>• Fracture risk assessment using FRAX or QFracture.</li> <li>• Quality-assured axial DXA within 12 weeks of referral.</li> <li>• Relevant laboratory and imaging investigations to clarify diagnosis and inform treatment decisions.</li> </ul> </li> <li>2.2. DXA reports are issued within 3 weeks of measurement and provide sufficient detail to support management decision-making to reduce fracture risk.</li> </ol>   |
| <b>Standard Three: Information and support</b>   |  |
| Information and support are offered to adults using the osteoporosis service, and their carers.                                      | <ol style="list-style-type: none"> <li>3.1. Adults and their carers are offered relevant information about: <ul style="list-style-type: none"> <li>• Osteoporosis and risk factors for fracture.</li> <li>• Lifestyle interventions including nutrition and exercise.</li> <li>• Coping with pain and symptoms of fracture.</li> <li>• Drug treatment options for osteoporosis and their benefits and side effects.</li> <li>• Minimizing their chances of falls.</li> </ul> </li> <li>3.2. Information is available in a range of formats and languages appropriate to the population served by the service.</li> <li>3.3. Correspondence from the osteoporosis service is copied to the person as well as the health professionals involved in their care.</li> <li>3.4. Adults are engaged in discussions and decisions made concerning their care plan.</li> </ol> |

| Standard Statement  | Criteria  |
|---|---|
| <b>Standard Four: Interventions to reduce fracture risk</b>   |   |
| Interventions to reduce the risk of fragility fractures are offered to adults who need them.  | <ol style="list-style-type: none"> <li>4.1. Adults at high risk of fragility fracture are offered appropriate drug treatments within 5 weeks of assessment.</li> <li>4.2. Adults are given information about how to take drug treatments recommended for them.</li> <li>4.3. Adults at risk of falling are referred to falls prevention services and offered interventions to keep them strong, steady and independent.</li> <li>4.4. A system is in place to ensure that people prescribed injectable drug treatments are invited to future appointments at the correct time.</li> </ol>   |
| <b>Standard Five: Follow-up and long-term management</b>  |   |
| 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. | <ol style="list-style-type: none"> <li>5.1. Adults starting an oral drug treatment for osteoporosis are assessed for adherence and adverse effects within 16 weeks of their fragility fracture and then every 52 weeks thereafter.</li> <li>5.2. Adults having long-term bisphosphonate therapy have periodic reviews of the risks and benefits of continuing treatment.</li> </ol>   |
| <b>Standard Six: Preventing pain and functional impairment after fracture</b>   |   |
| Adults who have a fragility fracture are offered interventions to reduce pain and functional impairment.  | <ol style="list-style-type: none"> <li>6.1. Adults who have had a fragility fracture are assessed for their level of pain and functional impairment.</li> <li>6.2. Adults who have had a fragility fracture are offered interventions as appropriate to reduce their pain and functional impairment.</li> <li>6.3. The osteoporosis service has access to orthopaedic, physiotherapy and occupational therapy services.</li> <li>6.4. Referral protocols are established between the osteoporosis service and specialist pain services.</li> </ol>  |
| <b>Standard Seven: Leadership, governance and professional development</b>  |   |
| The fracture prevention pathway has joined-up leadership that demonstrates clinical accountability, effective governance and robust professional development.             | <ol style="list-style-type: none"> <li>7.1. A designated lead clinician is accountable for all components of the service.</li> <li>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.</li> <li>7.3. The service is developed in line with the local Fracture Prevention Strategy.</li> <li>7.4. A quality assurance framework is in place that includes: <ul style="list-style-type: none"> <li>• Audit cycle, including participation in national audits.</li> <li>• Peer review.</li> <li>• Patient and carer experience measures.</li> </ul> </li> <li>7.5. All members of the osteoporosis team undergo assessment of professional competencies and demonstrate Continued Professional Development.</li> </ol> |

## Introduction

Osteoporosis is a long-term condition that causes bones to become fragile and break easily, often after a minor bump or fall (such breaks are known as “fragility fractures”). 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 loss 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 per year, and 255,000 falls result in an emergency admission. 80% of those with a non-hip fracture are not 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 help people improve their 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, primary care and pharmacy. 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 engage effectively with available services and ensure that they receive care to meet their needs. A summary of this document is available online at [www.nos.org.uk/osteoporosis-standards](http://www.nos.org.uk/osteoporosis-standards) 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 and carer experience measures.

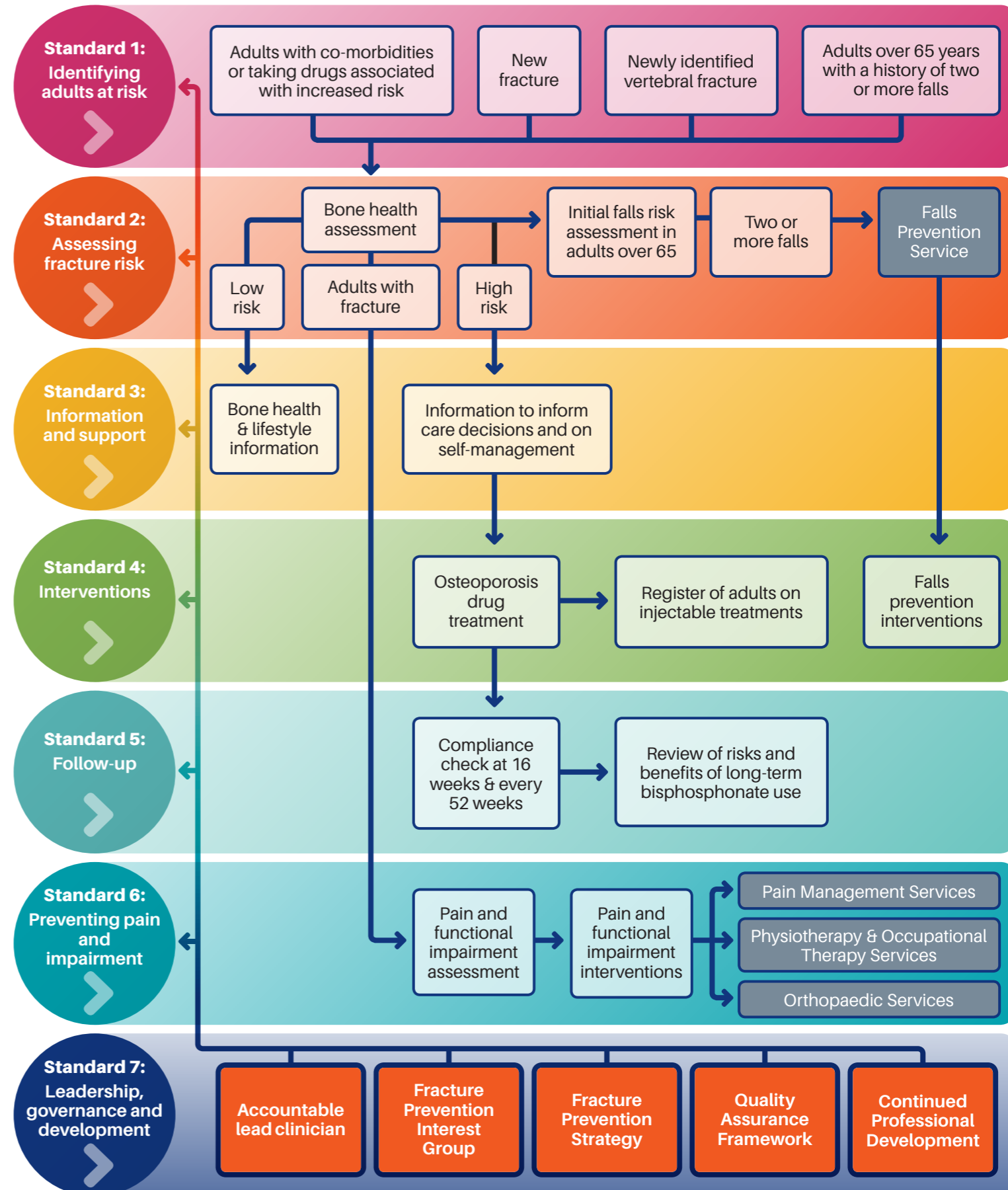
These standards provide the foundation for Peer Review of Osteoporosis and Metabolic Bone Services, provided by the National Osteoporosis Society. For further information and downloadable templates, visit [www.nos.org.uk/osteoporosis-standards](http://www.nos.org.uk/osteoporosis-standards).

## Working with other guidance

The standards contained in this document are consistent with the quality standard on osteoporosis (QS149) of the National Institute for Health and Care Excellence (NICE) 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.

## Components of a fracture prevention pathway



## 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. Incident vertebral (or spinal) 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 populations will reduce fragility fractures.

### Criteria

- 1.1. Adults aged 50 or over with a new fragility fracture are systematically and proactively identified.
- 1.2. Adults aged 50 or 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 aged 65 or over 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 identifies and checks everyone over the age of 50 years who has a fragility fracture. Various techniques are used to ensure people with fractures are identified, including working with other departments (e.g. fracture clinics and inpatient wards) and reviewing admissions lists and radiology reports. 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 also recommended in adults with diseases or using drugs associated with osteoporosis or increased fracture risk. In developing guidance on osteoporosis and fracture prevention, the Scottish Intercollegiate Guidelines Network (SIGN) carried out a systematic review of the evidence on risk factors. Its findings are summarised in Table 1. An osteoporosis service can work with colleagues in primary care, community pharmacists, 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 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 increased fracture risk (adapted from SIGN 142: Management of osteoporosis and the prevention of fragility fractures).

| Diseases  | Drugs   |
|---|---|
| Diabetes  | Long-term antidepressants   |
| Inflammatory rheumatic diseases   | Antiepileptics  |
| Inflammatory bowel disease and malabsorption  | Aromatase inhibitors  |
| Institutionalised patients with epilepsy  | Long-term depot medroxyprogesterone acetate                           |
| Primary hyperparathyroidism and endocrine diseases  | Gonadotropin-releasing hormone agonists (in men with prostate cancer) |
| Chronic liver disease   | Proton pump inhibitors  |
| Neurological diseases (including Alzheimer's disease, Parkinson's disease, multiple sclerosis and stroke) | Oral glucocorticoids  |
| Moderate to severe chronic kidney disease   | Thiazolidinediones  |
| Asthma  |   |

### 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.
- You are aged 65 or older and you have fallen two or more times in the past year.

#### 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 will aspire to achieve the standards for FLSs outlined in *Effective Secondary Prevention of Fragility Fractures: Clinical Standards for Fracture Liaison Services*.
- Have procedures to ensure that people with risk factors for osteoporosis are identified, including two-way referral pathways between relevant departments and the osteoporosis service.
- Have procedures in place to ensure that all images that include the spine are scrutinised for the presence of vertebral fractures and that these are reported clearly, with signposting to the fracture prevention pathway.

### Examples of 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 patients aged over 50 by a factor of 5).  
*Data source:* The Fracture Liaison Service Database (FLS-DB), a national audit managed by the Royal College of Physicians, collects data for England and Wales on adults who have sustained a fragility fracture. This audit estimates the denominator for total fragility fractures as described above. For non-participating sites, local data collection or population estimates will be required.
- 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 two or more falls per year.  
*Data source:* Local data collection or population estimates.
- c) **Incidence of fragility fractures**  
*Data source:* The FLS-DB collects data for England and Wales on adults who have sustained a fragility fracture. For non-participating sites, local data collection or population estimates will be required.

### Examples of evidence of achievement

- Systems are in place to ensure that adults who have had a fragility fracture are systematically identified, ideally through a comprehensive FLS.
- 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.

## 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 issuing of investigation results and DXA reports minimises delays in the commencement of treatment and the investigation of incidental findings, such as where there is a suspicion of vertebral fracture.

### Criteria

- 2.1. Adults identified as being at increased risk of fragility fracture are offered an assessment. This will include an initial assessment of falls risk in adults aged 65 or over *and* one or more of the following components:
  - Fracture risk assessment using FRAX or QFracture.
  - Quality-assured axial DXA within 12 weeks of referral.
  - Relevant laboratory and imaging investigations to clarify diagnosis and inform treatment decisions.
- 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 (alongside fracture risk assessment tools) provides information to support treatment decisions. 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. DXA will be carried out within 12 weeks unless 6-week diagnostic waiting time targets apply locally.

**Fracture risk assessment tools:** FRAX and 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 Bone Mineral Density (BMD) T-score.

**Blood tests and other investigations:** Blood tests will help to unmask conditions other than primary osteoporosis that present with low BMD or fractures and identify underlying causes of bone loss that might need to be treated. Standard blood tests will include those listed in Table 2.

Other tests (listed on page 12 under “Special procedures”) may be required on an individual basis, taking into account a patient’s co-morbidities.

**Table 2:** Standard blood tests and other investigations (adapted from NOGG 2017: *Clinical Guideline for the Prevention and Treatment of Osteoporosis*).

| Standard blood tests  |
|---|
| Full blood cell count   |
| Sedimentation rate or C-reactive protein  |
| Serum calcium, albumin, creatinine, phosphate, alkaline phosphatase and liver transaminases                               |
| Thyroid function tests  |
| Special procedures  |
| Serum protein immunoelectrophoresis and urinary Bence Jones protein   |
| Serum 25-hydroxyvitamin D   |
| Plasma parathyroid hormone  |
| Serum testosterone (men), sex hormone binding globulin, follicle-stimulating hormone (women), luteinizing hormone (women) |
| Serum prolactin   |
| 24-hour urinary free cortisol/overnight dexamethasone suppression test  |
| Endomysial and/or tissue transglutaminase antibodies  |
| Markers of bone turnover  |
| Isotope bone scan   |
| Urinary calcium excretion   |

**Use of imaging:** The presence of vertebral fractures indicates a greater risk of future fractures and may influence the right choice of treatment for an individual. Vertebral Fracture Assessment (VFA) can be carried out with DXA. Lateral 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 past year is the single most important risk factor for falls and predicts future falls. People attending the osteoporosis service are asked whether they have fallen 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.

**DXA reports:** DXA reports include sufficient information to support the development of a management plan and treatment decisions. DXA 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 past year and your health professional will look at how you walk. If you have fallen two or more times, or your balance and the way you walk suggest you would benefit from specialist help, you will be invited to meet health professionals who will be able to assess your risk of falling in the future.
- Receive a copy of the DXA 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 past 52 weeks, observe their gait and balance, and refer them to falls prevention services for further assessment where needed.
- Produce high-quality DXA reports that support treatment decisions and indicate whether further assessment is needed.
- Share DXA 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 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:* The Fracture Liaison Service Database (FLS-DB), a national audit managed by the Royal College of Physicians, collects data for England and Wales on adults who have sustained a fragility fracture. 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:* The FLS-DB collects data for England and Wales on adults who have sustained a fragility fracture.. For non-participating sites and for data on patients who have not fractured, local data collection or population estimates will be required.
- c) **Number of DXA reports recorded as having a written outcome:** Numerator – the number of DXA reports recorded as having a written outcome. Denominator – total number of DXA scans carried out.  
*Data source:* Local data collection.
- d) **Number of DXA reports completed within 3 weeks of measurement:** Numerator – the number of scans carried out which have DXA reports completed within 3 weeks of measurement. Denominator – total number of DXA scans carried out.

*Data source:* Local data collection.

### Examples of evidence of achievement

- Locally agreed protocols that are based on relevant national guidance are in place and being followed consistently.
- Arrangements are in place to ensure that all adults who have fractured or have risk factors have a comprehensive assessment.
- The organisation complies with the Ionising Radiation (Medical Exposure) Regulations 2000 (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 is in place.
- There is an established clinical evaluation audit cycle under IR(ME)R.
- There is an established scan-report procedure and audit cycle.
- DXA reporting guidance and a template report.

## 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 kept informed and is 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:
  - Osteoporosis and risk factors for fracture.
  - Lifestyle interventions including nutrition and exercise.
  - Coping with pain and symptoms of fracture.
  - Drug treatment options for osteoporosis and their benefits and side effects.
  - Minimising their chances of falling.
- 3.2. Information is available in a range of formats and languages appropriate to the population served by the service.
- 3.3. Correspondence from the osteoporosis service is copied to the person as well as the health professionals involved in their care.
- 3.4. Adults are engaged in discussions and decisions made concerning their care plan.

### In practice

The information needs of all people coming into contact with an osteoporosis service are considered, including those who do not yet require drug treatments. Every opportunity is taken to reiterate healthy living messages for general good health. 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 discussions, 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 opportunities to ask questions, discuss options and participate in decisions about your care.
- Understand your bone health and what you can do to keep your bones strong.
- Understand the benefits and side effects of treatments recommended for you.
- Receive contact information for your osteoporosis service and/or 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 their 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 professionals.
- Offer regular patient education sessions to give information and support to people at risk of fractures.

**Examples of data and audit**

- Proportion of adults given information during a discussion with their 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.
- 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.
- Proportion of adults who felt there was sufficient time at their appointment to ask all the questions they wanted to ask:** Numerator – adults who felt the appointment was long enough. Denominator – total number of adults completing a patient satisfaction questionnaire.  
*Data source:* Local data collection.
- 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 a patient satisfaction questionnaire.  
*Data source:* Local data collection.
- Proportion of adults who knew 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 a patient satisfaction questionnaire.  
*Data source:* Local data collection.
- Proportion of adults who received copies of correspondence:** Numerator – adults who received copies of correspondence. Denominator – total number of adults completing a patient satisfaction questionnaire.  
*Data source:* Local data collection.

**Examples of evidence of achievement**

- A good range of information about osteoporosis and bone health is offered by the service, and the range of formats available is sufficient for the population.
- Evidence is collected to show that information is provided to patients.
- Patient-reported outcomes are regularly measured, analysed, reviewed and acted upon.
- Satisfaction surveys are conducted, with actions taken to resolve any issues highlighted.
- Details are kept of education sessions held, how they are promoted and the numbers attending.

## 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 people who are at increased risk of future fracture, evidence-based actions are taken to minimise this risk. These include 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 helps to 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 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. The cost-effectiveness of treatments is assessed by NICE, the Scottish Medicines Consortium and the All Wales Medicines Strategy Group.

NICE Technology Appraisal 464 (TA464) states that bisphosphonates are cost-effective in the treatment of people at very low levels of risk (in patients with a 10-year probability of fracture of at least 1% for oral bisphosphonates or for second-line use of zoledronate, or at least 10% for first-line use of zoledronate). There should not therefore be any financial barrier to the use of bisphosphonates to treat osteoporosis.

However, NICE TA464 does not offer guidance on the clinically appropriate use of bisphosphonates and refers instead to guidelines produced by the National Osteoporosis Guideline Group (NOGG) to inform treatment decisions. National guidelines have also been produced by the Scottish Intercollegiate Guidelines Network (SIGN). The thresholds for interventions vary between the different sources of guidance, and these are summarised for bisphosphonates and denosumab in Table 3. The denosumab guidance in NICE's TA204 is under review but currently states that second-line use is cost-effective in post-menopausal women with a combination of low bone density and other risk factors.

Consequently, osteoporosis services will have their own local protocols for the use of osteoporosis drug treatments as well as the use of calcium and vitamin D supplements based on the recognised national guidance for their geographical location.

**Table 3:** Treatment thresholds summarised from *NOGG 2017: Clinical Guideline for the Prevention and Treatment of Osteoporosis* and *SIGN 142: Management of Osteoporosis and the prevention of fragility fractures*.

| Bisphosphonates                              | NOGG 2017  | SIGN 142 (2015)  |
|--|--|--|
| Vertebral fracture                           | Proceed to risk assessment using FRAX. Treatment can be initiated in women without DXA assessment, although DXA may be appropriate in some.  | DXA preferable but therapy can be commenced in men and women with prevalent vertebral fractures.   |
| Hip fracture                                 | FRAX followed by DXA if NOGG algorithm requires. Treatment can be initiated in women without DXA, although DXA may be appropriate in some.   | DXA followed by oral bisphosphonates if T-score at spine or hip is $\leq -2.5$ .<br>If DXA unavailable or not feasible, proceed to intravenous zoledronic acid.  |
| Other fracture                               | FRAX followed by DXA if NOGG algorithm requires. Treatment can be initiated in women without DXA assessment, although DXA may be appropriate in some.  | DXA followed by oral bisphosphonates if T-score at spine or hip is $\leq -2.5$ .<br>If DXA unavailable or not feasible, proceed to intravenous zoledronic acid.  |
| Prevalent clinical risk factors              | In men and women, FRAX followed by use of NOGG variable thresholds up to age 70, regardless of DXA T-score.<br>Over age 70 treatment can be given if major osteoporotic fracture risk is $\geq 20\%$ or hip fracture risk is $\geq 5\%$ regardless of DXA T-score. | If QFracture (preferred) or FRAX assessment 10-year fracture risk is $> 10\%$ , proceed to DXA.<br>Proceed to treatment if 10-year fracture risk is $\geq 10\%$ and DXA T-score at spine or hip is $\leq -2.5$ . |
| Denosumab                                    |  |  |
| Prevalent fractures or clinical risk factors | As per bisphosphonates.  | Proceed to treatment if 10-year fracture risk is $\geq 10\%$ and DXA T-score at spine or hip is $\leq -2.5$ and patient is unable to tolerate or has a poor response to oral bisphosphonates.                    |

### Continuation of injectable drug treatments:

Currently not everyone who is given an injectable drug treatment is offered 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 previous injection. If treatment is not repeated, people lose the benefits of the treatment and may be at increased 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, with 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 or pharmacist if you have any difficulties or concerns.
- Understand when and where you will have your next dose if you have been recommended an injectable osteoporosis treatment.
- Be invited to meet health professionals who can help you stay strong, steady and independent if you have fallen more than twice in the past 12 months or have or your balance and the way you walk suggest you would benefit from specialist help.

### 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.

### 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.
- Ensure that the osteoporosis service has strong links and two-way referral protocols with falls prevention services.

## Examples of data and audit

- 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), a national audit managed by the Royal College of Physicians, collects data for England and Wales on adults who have sustained a fragility fracture. For non-participating sites and for adults at high risk who have not had a fracture, local data collection or population estimates will be required.
- 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 FLS-DB collects data for England and Wales on adults who have sustained a fragility fracture. For non-participating sites and for adults at risk who have not had a fracture, local data collection or population estimates will be required.
- Proportion of adults receiving a subsequent dose of an 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.
- Incidence of fragility fractures**

*Data source:* The FLS-DB collects data for England and Wales on adults who have sustained a fragility fracture. For non-participating sites and for adults at high risk who have not had a fracture, local data collection or population estimates will be required.

## 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.

## 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 to 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 an oral drug treatment for osteoporosis are assessed for adherence and adverse effects within 16 weeks of their fragility fracture and then every 52 weeks thereafter.
- 5.2. Adults having long-term bisphosphonate therapy have periodic reviews 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 16 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 bisphosphonate 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. Denosumab and teriparatide should not be stopped without specialist review, and in the case of denosumab an alternative osteoporosis treatment may need to be offered to ensure continued bone protection.

Where a treatment 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 or pharmacist straight away if you have any difficulties with or concerns about 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 drug treatment after 16 weeks 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.
- Explain what should be done if the person experiences any difficulties or has concerns.
- Reinforce the information you give verbally with written information and/or other formats where appropriate.

#### The organisation

The organisation will:

- Have the 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 the systems and capacity to offer a comprehensive treatment review after 3 years for injectable drug treatments and after 5 years for oral drug treatments.
- Have clear protocols in place detailing when reviews take place and by which staff.

### Examples of 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), a national audit managed by the Royal College of Physicians, collects data for England and Wales on adults who have sustained a fragility fracture. For non-participating sites, local data collection will be required.

- b) **Proportion of adults adherent to treatment at 16 weeks:** Numerator – number of adults adherent to treatment at 16 weeks. Denominator – number of adults recommended a drug treatment.

*Data source:* The FLS-DB collects data for England and Wales on adults who have sustained a fragility fracture. For non-participating sites, local data collection will be required.

- 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 FLS-DB collects data for England and Wales on adults who have sustained a fragility fracture. For non-participating sites, local data collection will be required.

- d) **Proportion of adults adherent to treatment at 52 weeks:** Numerator – number of adults adherent to treatment at 52 weeks. Denominator – number of adults recommended a drug treatment.

*Data source:* The FLS-DB collects data for England and Wales on adults who have sustained a fragility fracture. For non-participating sites, local data collection will be required.

### Examples of evidence of achievement

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

## 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 a vertebral fracture, 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.

### 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 services.

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

### 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 orthopaedic, physiotherapy and occupational therapy services.
- 6.4. Referral protocols are established between the osteoporosis service and specialist pain 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.
- Be 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 will:

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

**Examples of data and audit**

- 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.
- 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.
- 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.
- Proportion of adults with fracture discharged to their previous place of residence:** Numerator – number of adults discharged to their previous place of residence. Denominator – total number of adults assessed.  
*Data source:* The Fracture Liaison Service Database (FLS-DB), a national audit managed by the Royal College of Physicians, collects data for England and Wales on adults who have sustained a fragility fracture. For non-participating sites and other fracture types, local data collection will be required.
- Proportion of adults given a community support package:** Numerator – number of adults given a community support package. Denominator – total number of adults assessed.  
*Data source:* Local data collection.

**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.

## 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 that 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 healthcare delivery. Maintaining contemporary knowledge is essential to delivering high-quality services that meet current standards.

### Criteria

- 7.1. A designated lead clinician is accountable 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 Fracture Prevention Strategy.
- 7.4. A quality assurance framework is in place that includes:
  - Audit cycle, including participation in national audits.
  - Peer review.
  - Patient and carer experience measures.
- 7.5. All members of the osteoporosis team undergo 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 are used to plan service development, provide peer support and facilitate the sharing of standardised, high-quality care across a region. The group will be multi-disciplinary, with representatives from all stakeholders in falls, bone health and fracture prevention, including those from primary, secondary and community care settings.

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 seamless, interconnected services for bone health and falls.
- 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 Fracture Prevention Interest Group.
- Be able to question practice and discuss different approaches to care.

#### The organisation

The organisation will:

- Have networks in place to support the development of the service and the sharing of knowledge.
- Have a multi-disciplinary Fracture Prevention Interest Group that oversees the development of care.
- Have a Fracture Prevention Strategy that includes falls and bone health.
- Carry out regular audits, review the results and seek to continually develop and improve.
- Have a professional accountability framework with clear lines of responsibility.
- Benchmark the service locally and nationally.

## Source guidance

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

### Examples of data and audit

- 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.
- Proportion of DXA operators with Bone Densitometry Training Scheme certification:** Numerator – number of DXA operators who have achieved certification. Denominator – total DXA operators.  
*Data source:* Local data collection.
- Proportion of staff meeting CPD goals:** Numerator – number of staff meeting CPD goals. Denominator – total staff.  
*Data source:* Local data collection.
- Proportion of staff completing satisfactory annual appraisals:** Numerator – number of staff with satisfactory annual appraisals. Denominator – total staff.  
*Data source:* Local data collection.
- 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.
- 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.

### Examples of evidence of achievement

- Leadership, managerial and governance structures are identified within the service.
- Completed audit cycles demonstrate effective, high-quality running of the service.
- Changes to the service and the system as a result of the audits.
- There is documentation from the most recent peer review.
- Staff attend accredited and relevant courses, conferences and meetings.
- Staff complete online training resources.
- There is a Fracture Prevention Interest Group with a membership list, typical agendas, minutes and meeting dates.
- Details of public and patient involvement in service development.

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## About us

The National Osteoporosis Society is the only UK-wide charity dedicated to ending the pain and suffering caused by osteoporosis. The Charity works tirelessly to help and support people with the condition as well as promoting good bone health to prevent osteoporosis. We do this by:

- Providing a range of information resources covering all aspects of osteoporosis for health professionals and the public.
- Providing a free helpline staffed by nurses with specialist knowledge of osteoporosis and bone health.
- Investing in research to ensure future generations are freed from the burden of osteoporosis.
- Influencing government and campaigning to improve and maintain essential services.
- Educating Health Professionals to ensure they are kept up to date about osteoporosis – through events, accredited training courses and our leading conference on osteoporosis and bone health.
- Working in partnership with the NHS to set up and improve Fracture Liaison Services which can reduce the number of fractures caused by osteoporosis.

To find out more about our information, support and services, visit our website: [www.nos.org.uk](http://www.nos.org.uk)

## Professional Membership

Professional membership of the National Osteoporosis Society will ensure you become better informed and able to deliver the best care possible to people with osteoporosis or fractures.

As a professional member, you'll have all the information you need at your fingertips and will stay up to date on best practice, care, delivery, new treatments and the latest news on osteoporosis research findings.

You'll also feel proud to be part of an organisation working hard to help those affected by osteoporosis.

To join a growing network of professional members like you, call our membership team on 01761 473287 or visit [www.nos.org.uk/professionals](http://www.nos.org.uk/professionals)

 **01761 471771** (General Enquiries)

 **0808 800 0035** (Helpline)

 **[www.nos.org.uk](http://www.nos.org.uk)**

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