ABIM Osteoporosis PIM™
Practice Improvement Module
Measures Catalogue

Osteoporosis PIM
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Introduction

This catalogue provides information related to the American Board of Internal Medicine's Osteoporosis Practice Improvement Module®. It is written in language that addresses the physician who might choose to complete this module, and it details the specifics of the module. Included is information regarding:

- **Purpose and structuring of the module**
- **Patient inclusion criteria**
- **Detailed description of the measures**

This PIM examines the care you provide to your patients by addressing key processes and outcomes related to osteoporosis. These are based primarily on guidelines from the American Association of Clinical Endocrinologists, the National Osteoporosis Foundation and the Institute of Medicine.

The PIM is divided into three parts, with multiple sections in each part.

Part 1 -Performance Data

Provide baseline data about your practice's current performance by...

- Reviewing your charts
- Assessing your practice systems

The 24 chart review measures are summarized below. **ABIM requires a minimum of 25 chart reviews.** The practice systems assessment comprises questions covering various aspects of practice structure and protocols.

Patients can be **included** in this module if **all** of the following are true:

1. Patients aged 18 and older with a diagnosis of osteoporosis, osteopenia or prior low impact fracture, or women age 65 and older or men age 70 and older regardless of diagnosis;
2. Management decisions regarding the diagnosis and treatment of osteoporosis are made primarily by providers in the practice;
3. They have been patients in the practice for at least one year; *AND*
4. They have been seen by the practice within the past 12 months.

Patients should be **excluded** from this module if they have a terminal illness or treatment of their osteoporosis is not clinically relevant.

Part 2 - Quality Improvement (QI) Plan
Develop a plan for improving one aspect of your practice after reviewing the analysis of your current performance data. The analysis will include many aspects of care you provide to your patients. Ultimately, you will target only one of these to use in this quality improvement (QI) cycle.

Part 3 - Remeasurement
Remeasure your performance data after you have implemented your QI plan to see if you achieved your goal. Then, you will reflect on the process of developing and implementing a QI plan.

You may claim CME credit for completing this activity. The University of Pennsylvania School of Medicine designates this educational activity for a maximum of 20 *AMA PRA Category 1 Credit(s)*™.

OSTEOPOROSIS - PROCESSES OF CARE

History				
Measure Title	**Description**	**Numerator**	**Denominator**	**Rationale**
Smoking status	Patients in the sample whose current smoking status was documented	Number of patients in the sample whose current smoking status was documented	Number of patients in the sample	Several research studies have identified smoking as a risk factor for osteoporosis and bone fracture. Cigarette smokers have increased catabolism of endogenous estrogen, and experience more fractures.
Medical record documents information about patient's exercise level within the past 12 months	Patients in the sample whose status regarding participation in a weight-bearing exercise program was documented within the past 12 months	Number of patients in the sample whose medical record indicated whether or not patient participated in a weight-bearing exercise program within the past 12 months	Number of patients in the sample	Good evidence has been found that physical activity is important for maintaining bone density. Weight-bearing exercise may slow bone loss attributable to disuse in elderly persons. In addition, regular exercise promotes mobility, agility, and muscle strength, all of which may help prevent falls. In addition, exercise may modestly increase bone density.
Current level of alcohol use	Patients in the sample whose current level of alcohol use was documented	Number of patients in the sample whose current level of alcohol use was documented	Number of patients in the sample	Good evidence has been found that screening regarding alcohol use can accurately identify patients whose levels or patterns of alcohol consumption place them at risk for increased morbidity and mortality. Heavy alcohol use is detrimental to bone health, increases the risk of falling and requires treatment when identified.

History				
Measure Title	**Description**	**Numerator**	**Denominator**	**Rationale**
Screen for falls risk evaluation	Patients in the sample whose screen for falls risk evaluation was documented.	Number of patients in the sample whose screen for falls risk evaluation was documented	Number of patients in the sample	Studies have shown that the risk for falling increases in the older population, resulting in an increase in serious outcomes and associated health care costs. Incorporating a falls assessment measure into the routine clinical evaluation is important for early identification of elders who are at greater risk for falls and provide information that can guide interventions.

Physical Examination				
Measure Title	**Description**	**Numerator**	**Denominator**	**Rationale**
Height	Patients in the sample with height documented	Number of patients in the sample who have height documented	Number of patients in the sample	Studies have shown that height loss increases the likelihood of osteoporosis of the hip and increases with the amount of height lost.
Young-adult height	Patients in the sample who have young-adult height documented	Number of patients in the sample who have young-adult height documented	Number of patients in the sample	During youth, bones grow in length and density. During the teen years, maximum height is reached, but bones continue to grow more dense until about age 30 when peak bone mass is attained. After that point, bones slowly start to lose density or strength. Throughout life, bone density is affected by heredity, diet, sex hormones, physical activity, lifestyle choices and the use of certain medications. Men have larger, stronger bones than women which explains, in part, why osteoporosis affects fewer men than women.

Physical Examination				
Measure Title	**Description**	**Numerator**	**Denominator**	**Rationale**
Weight	Patients in the sample with weight documented	Number of patients in the sample who have weight documented	Number of patients in the sample	Epidemiological evidence shows that obesity is correlated with increased bone mass. A high-quality meta-analysis showed that low body weight (body mass index 20 to 25 kg/m2 or lower) and/or weight loss (10% [compared with the usual young or adult weight or weight loss in recent years]) are important risk factors for osteoporosis in men age 70 and older. Underweight people tend to have lower bone mass than people of a healthy weight.
Height stability or loss	Medical record documents whether or not patient has lost one and half inches in height or more	Number of patients in the sample with documentation that they have or have not lost one and half inches in height or more	Number of patients in the sample	Studies have shown that height loss greater than 1.5 inches (3.8 cm) increases the likelihood that a vertebral fracture is present. Loss of 1.5 inches (3.8 cm) or more calls for evaluation by a lateral thoracolumbar radiograph or vertebral fracture assessment (VFA) by DXA to identify vertebral fractures.

Diagnostic Testing				
Measure Title	**Description**	**Numerator**	**Denominator**	**Rationale**
DXA scan performed and result documented	Patients in the sample who have had a DXA scan and result documented (Normal, Osteopenia, or Osteoporosis)	Number of patients in the sample, excluding those who are already on therapy and for whom imaging would not be likely to add benefit, or those with documented refusal, or could not be done due to healthcare system delivery reason, who have had a DXA scan and result documented (Normal, Osteopenia, or Osteoporosis)	Number of patients in the sample, excluding those who are already on therapy and for whom imaging would not be likely to add benefit, or those with documented refusal, or could not be done due to healthcare system delivery reason, who have had a DXA scan and result documented (Normal, Osteopenia, or Osteoporosis)	Measurement of bone density by dual energy X-ray absorptiometry (DXA) remains the "gold standard" for the diagnosis of osteoporosis and, where available, will clearly define need for specific therapy in the individual patient. DXA is also effective in tracking the effects of treatment for osteoporosis and other conditions that cause bone loss. DXA is the most validated and population specific information that helps predict fracture risk and can also help to diagnose normal bones as well as osteopenia.
Formal fracture risk assessment (such as a FRAX score)	Patients in the sample with osteopenia (i.e. osteopenia was identified as a risk factor or a T-score between -1.0 and -2.5) who have had a formal fracture risk assessment, excluding patients who are on pharmacologic therapy for osteoporosis or have had a hip or spine fracture	Number of patients in the sample with osteopenia (i.e. osteopenia was identified as a risk factor or a T-score between -1.0 and -2.5) who have had a formal fracture risk assessment, excluding patients who are on pharmacologic therapy for osteoporosis or have had a hip or spine fracture	Number of patients in the sample with osteopenia (i.e. osteopenia was identified as a risk factor or a T-score between -1.0 and -2.5), excluding patients who are on pharmacologic therapy for osteoporosis or have had a hip or spine fracture	The web-based tool called FRAX® was developed by The World Health Organization (WHO) to evaluate fracture risk of patients. It is based on individual patient models that integrate the risks associated with clinical risk factors as well as bone mineral density (BMD) at the femoral neck. The FRAX® models have been developed from studying population-based cohorts from Europe, North America, Asia and Australia. The FRAX® algorithms give the ten-year probability of fracture. The output is a ten-year probability of hip fracture and the ten-year probability of a major osteoporotic fracture (clinical spine, forearm, hip or shoulder fracture).

Diagnostic Testing				
Measure Title	**Description**	**Numerator**	**Denominator**	**Rationale**
25-hydroxy vitamin D level	Patients in the sample reported as taking a pharmacologic therapy for osteoporosis whose 25-hydroxy vitamin D level has been documented	Number of patients in the sample reported as taking a pharmacologic therapy for osteoporosis whose 25-hydroxy vitamin D level has been documented	Number of patients in the sample reported as taking a pharmacologic therapy for osteoporosis	Blood levels of 25(OH)D provide the best index of vitamin D stores. A desirable range is between 30 and 60 ng/mL. 25-hydroxy vitamin D is used to determine if bone weakness, bone malformation, or abnormal metabolism of calcium (reflected by abnormal calcium, phosphorus, PTH) is occurring as a result of a deficiency or excess of vitamin D.
Complete falls risk assessment	Patients in the sample who were reported as having a history of two or more falls, or fall-related injury and had a complete risk assessment for falls	Number of patients in the sample who were reported as having a history of two or more falls, or fall-related injury and had a complete risk assessment for falls	Number of patients in the sample reported as having a history of two or more falls, or fall-related injury	Since the majority of osteoporosis-related fractures result from falls, it is also important to evaluate risk factors for falling. A falls risk assessment should be performed for older persons who present for medical attention because of a fall, report recurrent falls in the past year, report difficulties in walking or balance or fear of falling, or demonstrate unsteadiness or difficulty performing a gait and balance test.
Falls plan of care	Patients in the sample who were reported as having a history of two or more falls, or fall-related injury and had a falls plan of care	Number of patients in the sample who were reported as having a history of two or more falls, or fall-related injury and had a falls plan of care	Number of patients in the sample reported as having a history of two or more falls, or fall-related injury	A falls plan of care must include consideration of appropriate assistance device and balance, strength, and gait training. Interventions to prevent future falls should be documented for the patient with 2 or more falls or injurious falls.

Diagnostic Testing				
Measure Title	**Description**	**Numerator**	**Denominator**	**Rationale**
Serum chemistry panel performed within 12 months of initiating treatment for osteoporosis	Patients in the sample reported as taking pharmacologic therapy, who had a serum chemistry panel performed within 12 months of initiating treatment for osteoporosis	Number of patients in the sample reported as taking a pharmacologic therapy, who had a serum chemistry panel performed within 12 months of initiating treatment for osteoporosis	Number of patients in the sample reported as taking a pharmacologic therapy, excluding those patients who were already on therapy and information is not available	In general, biochemical testing (such as serum calcium, creatinine, etc.) should be considered in patients with documented osteoporosis prior to initiation of treatment. The other purpose of laboratory tests is to check for secondary causes of osteoporosis such as cases of renal or hepatic failure, anemia, acidosis, hypercalciuria, and abnormalities of calcium/phosphate and should be done as indicated and not routinely.

Counseling				
Measure Title	**Description**	**Numerator**	**Denominator**	**Rationale**
Estimated dietary calcium intake	Patients in the sample whose current estimated dietary calcium intake was reported as being documented	Number of patients in the sample whose current estimated dietary calcium intake was reported as being documented	Number of patients in the sample	Lifelong adequate calcium intake is necessary for the acquisition of peak bone mass and subsequent maintenance of bone health.
Appropriate calcium supplementation	Patients in the sample with <1200 mg/day estimated dietary calcium intake who are currently taking calcium supplementation with dosage documented, OR patients in the sample with at least 1200 mg/day estimated dietary calcium intake and documented NOT currently taking calcium supplementation	Number of patients in the sample with <1200 mg/day estimated dietary calcium intake who are currently taking calcium supplementation with dosage documented, OR patients in the sample with at least 1200 mg/day estimated dietary calcium intake and documented NOT currently taking calcium supplementation	Number of patients in the sample with a documentation of estimated dietary calcium intake	Calcium and vitamin D are essential as adjunctive therapies to the more potent antiresorptive therapies. Calcium supplementation should be prescribed whenever it is needed to achieve the recommended daily intake levels.
Calcium intake assessment	Patients in the sample with assessment of adequacy of calcium intake through diet and/or supplementation	Number of patients in the sample with assessment of adequacy of calcium through diet and/or calcium supplementation	Number of patients in the sample	Lifelong adequate calcium intake is necessary for the acquisition of peak bone mass and subsequent maintenance of bone health.

Counseling				
Measure Title	**Description**	**Numerator**	**Denominator**	**Rationale**
Calcium intake counseling	Applicable patients in the sample with documentation of receiving counseling about appropriate calcium intake	Number of patients in the sample, excluding patients whose total estimated daily calcium intake is 1200-1500 mg, or whose total estimated daily calcium intake is >1500 mg but not taking calcium supplementation, with documentation of receiving counseling about appropriate calcium intake	Number of patients in the sample, excluding patients whose total estimated daily calcium intake is 1200-1500 mg, or whose total estimated daily calcium intake is >1500 mg but not taking calcium supplementation	Adequate calcium intake is a fundamental element of any osteoporosis prevention or treatment program. Patients should be counseled specifically on the importance of calcium and vitamin D as part of any treatment program for osteoporosis.
Vitamin D intake assessment	Patients in the sample with assessment of adequacy of vitamin D intake through diet and supplementation	Number of patients in the sample with assessment of adequacy of vitamin D intake either because the patient uses supplementation or because an estimate of dietary vitamin D intake has been documented	Number of patients in the sample	According to several studies, 40%-100% of U.S. community-dwelling seniors are vitamin D deficient.
Vitamin D counseling	Patients in the sample with documentation of receiving counseling about vitamin D	Number of patients in the sample with documentation of receiving counseling about adequate vitamin D, excluding patients whose total estimated daily vitamin D intake is 600-800 IU	Number of patients in the sample, excluding patients whose total estimated daily vitamin D intake is 600-800 IU	Patients should be counseled specifically on the importance of calcium and vitamin D as part of any treatment program for osteoporosis. Dietary instruction should be given to the patient and/or caregiver to ensure adequate understanding of dietary requirements.
Weight-bearing exercise program within the past 12 months	Patients in the sample who are able to exercise but did not participate regularly in a weight-bearing exercise program, who have documentation of receiving advice to participate in a weight-bearing exercise program within the past 12 months	Number of patients in the sample who are able to exercise but did not participate regularly in a weight-bearing exercise program, who have documentation of receiving advice to participate in a weight-bearing exercise program within the past 12 months	Number of patients in the sample who are able to exercise but did not participate regularly in a weight-bearing exercise program	Multiple studies have demonstrated a beneficial effect on bone density from impact and non-impact exercise. Randomized clinical trials have shown that exercise can reduce falls by up to 25% in older adults. Also, when combined with adequate calcium intake, exercise can have a moderating effect, slowing the loss of bone mass.

Counseling				
Measure Title	**Description**	**Numerator**	**Denominator**	**Rationale**
Smoking-cessation support within past 12 months	Patients in the sample who are smokers and who received smoking-cessation counseling or treatment during the 12-month period prior to the visit date, with a three-month grace period	Number of patients in this sample who are smokers and for whom smoking-cessation counseling or treatment was documented during the 12-month abstraction period or three months prior to the abstraction period	Number of patients in this sample who are smokers	A number of large randomized clinical trials have demonstrated the efficacy and cost-effectiveness of smoking-cessation counseling in changing smoking behavior and reducing tobacco use.
Documentation of assessment/review of patient's adherence to pharmacological therapies within the past 12 months	Patients in the sample reported as taking a pharmacologic therapy, whose adherence to pharmacological therapies was assessed/reviewed within the past 12 months and documented	Number of patients in the sample reported as taking a pharmacologic therapy, whose adherence to pharmacological therapies was assessed/reviewed within the past 12 months and documented	Number of patients in the sample reported as taking a pharmacologic therapy for osteoporosis	Multiple studies have demonstrated poor adherence to medications for conditions that are 'asymptomatic' such as osteoporosis. Despite advances in therapeutic options fracture rates remain unacceptably high – often due to patients not adhering to the medications prescribed to them. Practices need to develop screening strategies for adherence that systematically are employed for patients with chronic, silent conditions.

Treatment				
Measure Title	**Description**	**Numerator**	**Denominator**	**Rationale**
Pharmacologic therapy	Patients in this sample with the diagnosis of osteoporosis, OR with the diagnosis of osteopenia AND a 10-year probability of a hip fracture ≥ 3% or a 10-year probability of a major osteoporosis-related fracture ≥ 20%, who were reported as taking pharmacologic therapy approved by the FDA	Number of patients in this sample with the diagnosis of osteoporosis, OR with the diagnosis of osteopenia AND a 10-year probability of a hip fracture ≥ 3% or a 10-year probability of a major osteoporosis-related fracture ≥ 20%, who were reported as taking a pharmacologic therapy approved by the FDA	Number of patients in this sample with the diagnosis of osteoporosis (i.e. a previous diagnosis of osteoporosis or a T-score of -2.5 or less), OR with the diagnosis of osteopenia AND a 10-year probability of a hip fracture ≥ 3% or a 10-year probability of a major osteoporosis-related fracture ≥ 20%	Current FDA-approved pharmacologic options for the prevention and/or treatment of postmenopausal osteoporosis include, bisphosphonates (alendronate, alendronate plus D, ibandronate, risedronate, risedronate with 500 mg of calcium carbonate and zoledronic acid), calcitonin, estrogens (estrogen and/or hormone therapy), estrogen agonist/antagonist (raloxifene), parathyroid hormone [PTH(1-34), teriparatide and denosumab (prolia).

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