

eCQM Title		Appropriate Use of DXA Scans in Women Under 65 Years Who Do Not Meet the Risk Factor Profile for Osteoporotic Fracture	
eCQM Identifier (Measure Authoring Tool)	249	eCQM Version Number	5.0.000
NQF Number	3475e	GUID	a3ce125d-c238-42ce-862e-dba0055dfc66
Measurement Period	January 1, 20XX through December 31, 20XX		
Measure Steward	Centers for Medicare & Medicaid Services (CMS)		
Measure Developer	National Committee for Quality Assurance		
Endorsed By	National Quality Forum		
Description	<p>Percentage of female patients 50 to 64 years of age without select risk factors for osteoporotic fracture who received an order for a dual-energy x-ray absorptiometry (DXA) scan during the measurement period</p> <p>This Physician Performance Measure (Measure) and related data specifications are owned and stewarded by the Centers for Medicare & Medicaid Services (CMS). This measure was developed under CMS Contract No. HHSM-500-2013-13011I, Task Order HHSM-500-TO0001. Mathematica and the National Committee for Quality Assurance (NCQA) supported development of this electronic measure. NCQA is not responsible for any use of the Measure. NCQA makes no representations, warranties, or endorsement about the quality of any organization or physician that uses or reports performance measures and NCQA has no liability to anyone who relies on such measures or specifications.</p>		
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Measure Scoring	Proportion		
Measure Type	Process		
Stratification	None		
Risk Adjustment	None		
Rate Aggregation	None		
Rationale	<p>This measure is expected to increase recording of patient risk for fracture data and decrease the amount of inappropriate DXA scans. Current osteoporosis guidelines recommend using bone measurement testing to assess osteoporosis risk in women 65 years and older. In postmenopausal women younger than age 65, guidelines recommend using a formal clinical risk assessment tool to establish a patient's risk for osteoporosis, in order to determine whether to screen a patient for osteoporosis using bone measurement testing. Clinical information, such as age, body mass index (BMI), parental hip fracture history, and alcohol use, can be used to determine a woman's fracture risk (U.S. Preventive Services Task Force [USPSTF], 2018). Additionally, there are potentially avoidable harms associated with screening for osteoporosis in general, including exposure to radiation, false positive exams, and resulting side effects from unnecessary osteoporosis medications, which add costs to an already burdened health care system (Lim, Hoeksema, & Sherin, 2009).</p> <p>USPSTF: "The USPSTF recommends screening for osteoporosis with bone measurement testing to prevent osteoporotic fractures in women 65 years and older." This is a B recommendation.</p> <p>"The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of screening for osteoporosis to prevent osteoporotic fractures in men." This is an I statement.</p> <p>"The USPSTF recommends screening for osteoporosis with bone measurement testing to prevent osteoporotic fractures in postmenopausal women younger than 65 years who are at increased risk of osteoporosis, as determined by a formal clinical risk assessment tool." This is a B recommendation.</p> <p>"For postmenopausal women younger than 65 years who have at least 1 risk factor, a reasonable approach to determine who should be screened with bone measurement testing is to use a clinical risk assessment tool."</p>		
Clinical Recommendation Statement	<p>"Several tools are available to assess osteoporosis risk: the Simple Calculated Osteoporosis Risk Estimate (SCORE; Merck), Osteoporosis Risk Assessment Instrument (ORAI), Osteoporosis Index of Risk (OSIRIS), and the Osteoporosis Self-Assessment Tool (OST). These tools seem to perform similarly and are moderately accurate at predicting osteoporosis. The FRAX tool (University of Sheffield), which assesses a person's 10-year risk of fracture, is also a commonly used tool."</p> <p>"Because the benefits of treatment are greater in persons at higher risk of fracture, one approach is to perform bone measurement testing in postmenopausal women younger than 65 years who have a 10-year FRAX risk of major osteoporotic fracture (MOF) (without DXA) greater than that of a 65-year-old white woman without major risk factors. For example, in the United States, a 65-year-old white woman of mean height and weight without major risk factors has a 10-year FRAX risk of MOF of 8.4%."</p>		
Improvement Notation	<p>Lower score indicates better quality</p> <p>Reference Type: CITATION</p>		
Reference	<p>Reference Text: 'Lim, L. S., Hoeksema, L. J., & Sherin, K. (2009). Screening for osteoporosis in the adult U.S. population: ACPM position statement on preventive practice. American Journal of Preventive Medicine, 36(4), 366-375.'</p> <p>Reference Type: CITATION</p>		
Reference	<p>Reference Text: 'U.S. Preventive Services Task Force, Curry S. J., Krist, A. H., et al. (2018). Screening for osteoporosis to prevent fractures: U.S. Preventive Services Task Force recommendation statement. JAMA, 319(24), 2521-2531.'</p>		
Definition	<p>The measure allows for clinicians to use 4 tools to assess osteoporosis or osteoporotic fracture risk.</p> <ol style="list-style-type: none"> 1. The Fracture Risk Assessment Tool (FRAX[R]) is used to calculate 10-year absolute fracture risk. The FRAX evaluates a patient's 10-year probability of hip fracture and major osteoporotic fracture (clinical spine, forearm, hip, or shoulder fracture). It is applicable to people aged 40-90 years. 2. The Osteoporosis Risk Assessment Instrument (ORAI) is used to calculate osteoporosis risk. It is applicable to women >=45 years. 3. The Osteoporosis Index of Risk (OSIRIS) is used to calculate osteoporosis risk. It is applicable to patients of any age. 		

Guidance	<p>4. The Osteoporosis Self Assessment Tool (OST) is used to calculate osteoporosis risk. It is applicable to patients of any age.</p> <p>Patients are excluded from the measure if they have one or more risk factors for osteoporosis, including a result indicating that the patient should be considered for bone density testing on one of the following risk assessment instruments:</p> <ul style="list-style-type: none"> • 10-year probability of major osteoporotic fracture of 8.4 percent or higher as determined by the FRAX • ORAI score of $>=9$ • OSIRIS score of <1 • OST score of <2 <p>This eCQM is a patient-based measure.</p> <p>This version of the eCQM uses QDM version 5.6. Please refer to the eCQI resource center (https://ecqi.healthit.gov/qdm) for more information on the QDM.</p>
Transmission Format	TBD
Initial Population	Female patients ages 50 to 63 years at the start of the measurement period with an encounter during the measurement period
Denominator	<p>Equals Initial Population</p> <p>Exclude patients with one of the following risk factors.</p> <p>Risk factors are grouped by when they occur in relation to the measurement period.</p> <p>The following risk factors must be active during the measurement period: BMI ≤ 20 kg/m² (must be the first BMI of the measurement period) Alcohol consumption ($>$ two units per day (one unit is 12 oz. of beer, 4 oz. of wine, or 1 oz. of liquor))</p> <p>The following risk factors may occur at any time in the patient's history prior to the start of the measurement period: Osteoporosis Osteopenia</p> <p>The following risk factors may occur at any time in the patient's history prior to the start of the measurement period, but do not need to be active during the measurement period: Gastric bypass Aromatase inhibitors Documentation of history of hip fracture in parent</p> <p>The following risk factors may occur at any time in the patient's history or during the measurement period: Glucocorticoids [cumulative medication duration ≥ 90 days] Osteoporotic fracture Malabsorption Syndromes: celiac disease, inflammatory bowel disease, ulcerative colitis, Crohn's disease, cystic fibrosis, malabsorption Chronic malnutrition Chronic liver disease Rheumatoid arthritis Hyperthyroidism Type I Diabetes End stage renal disease Osteogenesis imperfecta Ankylosing spondylitis Psoriatic arthritis Ehlers-Danlos syndrome Cushing's syndrome Hyperparathyroidism Marfan syndrome Lupus Chemotherapy Multiple myeloma Premature menopause Double or bilateral oophorectomy Eating disorder Amenorrhea Organ transplant</p>
Denominator Exclusions	
Numerator	Female patients who received an order for at least one DXA scan in the measurement period
Numerator Exclusions	<p>Exclude patients with a result on one of the following tools, which indicates the patient should be considered for bone density testing, anytime in the patient's history prior to the time of the first DXA scan during the measurement period: FRAX[R] ten-year probability of all major osteoporosis related fracture ≥ 8.4 percent ORAI score of $>=9$ OSIRIS score of <1 OST score of <2</p>
Denominator Exceptions	None
Supplemental Data Elements	For every patient evaluated by this measure also identify payer, race, ethnicity and sex

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Population Criteria

Initial Population

```
AgeInYearsAt(date from start of "Measurement Period")in Interval[50, 63]
and exists ( ["Patient Characteristic Sex": "Female" ] )
and exists "Qualifying Encounter"
```

Denominator

```
"Initial Population"
```

Denominator Exclusions

"Has Risk Factor Active During the Measurement Period"
 or "Has Risk Factor Any Time in History Prior to Measurement Period"
 or "Has Risk Factor Any Time in History Prior to Measurement Period and Do Not Need to be Active During Measurement Period"
 or "Has Risk Factor Any Time in History or During Measurement Period"

Numerator

exists "DXA Scan Order During Measurement Period"

Numerator Exclusions

exists "Osteoporosis Fracture Risk Assessment Prior to First DXA Scan"

Denominator Exceptions

None

Stratification

None

Definitions**Denominator**

"Initial Population"

Denominator Exclusions

"Has Risk Factor Active During the Measurement Period"
 or "Has Risk Factor Any Time in History Prior to Measurement Period"
 or "Has Risk Factor Any Time in History Prior to Measurement Period and Do Not Need to be Active During Measurement Period"
 or "Has Risk Factor Any Time in History or During Measurement Period"

DXA Scan Order During Measurement Period

["Diagnostic Study, Order": "DXA (Dual energy Xray Absorptiometry) Scan"] DXA
 where DXA.authorDatetime during "Measurement Period"
 sort by authorDatetime asc

First Average Number of Drinks Assessment Indicating More Than Two Per Day

First(["Assessment, Performed": "Alcoholic drinks per drinking day - Reported"] AverageDrinks
 where start of Global."NormalizeInterval"(AverageDrinks.relevantDatetime, AverageDrinks.relevantPeriod) during "Measurement Period"
 and AverageDrinks.result > 2 '{drinks}/d'
 sort by start of Global."NormalizeInterval"(relevantDatetime, relevantPeriod)
)

First BMI in Measurement Period

First(["Physical Exam, Performed": "Body mass index (BMI) [Ratio]" BMI
 where start of Global."NormalizeInterval"(BMI.relevantDatetime, BMI.relevantPeriod) during "Measurement Period"
 and BMI.result is not null
 sort by start of Global."NormalizeInterval"(relevantDatetime, relevantPeriod)
)

First BMI in Measurement Period Less Than or Equal to 20 kg m2

"First BMI in Measurement Period" FirstBMI
 where FirstBMI.result <= 20 'kg/m2'

Glucocorticoid Active Medication Days

Sum("Glucocorticoid Active Medication Duration in Days")

Glucocorticoid Active Medication Duration in Days

(collapse (["Medication, Active": "Glucocorticoids (oral only)"] Glucocorticoid
 where Glucocorticoid.relevantPeriod starts before
 end of "Measurement Period"
).relevantPeriod per day) GlucocorticoidIntervals
 return difference in days of (GlucocorticoidIntervals
 intersect Interval[Patient.birthDatetime,
 end of "Measurement Period"]
) + 1

Has 90 or More Active Glucocorticoid Medication Days

"Glucocorticoid Active Medication Days" >= 90

Has Double or Bilateral Oophorectomy

exists ("ProcedureInPatientHistory"(["Procedure, Performed": "Bilateral Oophorectomy"])
 or exists ("ProcedureInPatientHistory"(["Procedure, Performed": "Evidence of Bilateral Oophorectomy"])
 or (exists ("ProcedureInPatientHistory"(["Procedure, Performed": "Unilateral Oophorectomy, Unspecified Laterality"] UnilateralOophorectomy
 where UnilateralOophorectomy.anatomicalLocationSite ~ "Right (qualifier value)"
)
 union ["Procedure, Performed": "Unilateral Oophorectomy Right"]
)
)
 and exists ("ProcedureInPatientHistory"(["Procedure, Performed": "Unilateral Oophorectomy, Unspecified Laterality"] UnilateralOophorectomy
 where UnilateralOophorectomy.anatomicalLocationSite ~ "Left (qualifier value)"
)
 union ["Procedure, Performed": "Unilateral Oophorectomy Left"]
)
)

4 Has Organ Transplants

```
exists "ProcedureInPatientHistory"(["Procedure, Performed": "Major Transplant"]
  union ["Procedure, Performed": "Kidney Transplant"]
  union ["Procedure, Performed": "Bone Marrow Transplant"]
)
```

4 Has Osteopenia Before Measurement Period

```
exists ["Diagnosis": "Osteopenia"] OsteopeniaDiagnosis
  where OsteopeniaDiagnosis.prevalencePeriod starts before start of "Measurement Period"
```

4 Has Osteoporosis Before Measurement Period

```
exists ["Diagnosis": "Osteoporosis"] OsteoporosisDiagnosis
  where OsteoporosisDiagnosis.prevalencePeriod starts before start of "Measurement Period"
```

4 Has Risk Factor Active During the Measurement Period

```
"First BMI in Measurement Period Less Than or Equal to 20 kg m2" is not null
or "First Average Number of Drinks Assessment Indicating More Than Two Per Day" is not null
```

4 Has Risk Factor Any Time in History or During Measurement Period

```
"Has 90 or More Active Glucocorticoid Medication Days"
or exists ( "DiagnosisInPatientHistory"(["Diagnosis": "Osteoporotic Fractures"]
  union ["Diagnosis": "Malabsorption Syndromes"]
  union ["Diagnosis": "Chronic Malnutrition"]
  union ["Diagnosis": "Chronic Liver Disease"]
  union ["Diagnosis": "Rheumatoid Arthritis"]
  union ["Diagnosis": "Hyperthyroidism"]
  union ["Diagnosis": "Type 1 Diabetes"]
  union ["Diagnosis": "End Stage Renal Disease"]
  union ["Diagnosis": "Osteogenesis Imperfecta"]
  union ["Diagnosis": "Ankylosing Spondylitis"]
  union ["Diagnosis": "Psoriatic Arthritis"]
  union ["Diagnosis": "Ehlers Danlos Syndrome"]
  union ["Diagnosis": "Cushings Syndrome"]
  union ["Diagnosis": "Hyperparathyroidism"]
  union ["Diagnosis": "Marfan's Syndrome"]
  union ["Diagnosis": "Lupus"]
  union ["Diagnosis": "Multiple Myeloma"]
  union ["Diagnosis": "Premature Menopause"]
  union ["Diagnosis": "Eating Disorders"]
  union ["Diagnosis": "Amenorrhea"]
)
)
or exists "ProcedureInPatientHistory"(["Procedure, Performed": "Chemotherapy"])
or "Has Double or Bilateral Oophorectomy"
or "Has Organ Transplants"
```

4 Has Risk Factor Any Time in History Prior to Measurement Period

```
"Has Osteoporosis Before Measurement Period"
or "Has Osteopenia Before Measurement Period"
```

4 Has Risk Factor Any Time in History Prior to Measurement Period and Do Not Need to be Active During Measurement Period

```
exists ( ( ["Procedure, Performed": "Gastric Bypass Surgery"] GastricBypass
  where Global."NormalizeInterval" ( GastricBypass.relevantDatetime, GastricBypass.relevantPeriod ) ends before start of "Measurement Period"
)
  union ( ["Medication, Active": "Aromatase Inhibitors"] AromataseInhibitorActive
  where Global."NormalizeInterval" ( AromataseInhibitorActive.relevantDatetime, AromataseInhibitorActive.relevantPeriod ) starts before start of "Measurement Period"
)
  union ( ["Medication, Order": "Aromatase Inhibitors"] AromataseInhibitorOrder
  where AromataseInhibitorOrder.authorDatetime before start of "Measurement Period"
)
)
  union "Parent History of Hip Fracture Assessment"
```

4 Initial Population

```
AgeInYearsAt(date from start of "Measurement Period")in Interval[50, 63]
and exists ( ["Patient Characteristic Sex": "Female"] )
and exists "Qualifying Encounter"
```

4 Numerator

```
exists "DXA Scan Order During Measurement Period"
```

4 Numerator Exclusion

```
exists "Osteoporosis Fracture Risk Assessment Prior to First DXA Scan"
```

4 Osteoporosis Fracture Risk Assessment Prior to First DXA Scan

```
(( ["Assessment, Performed": "Major osteoporotic fracture 10-year probability [Likelihood] Fracture Risk Assessment"] FRAX
  where FRAX.result >= 8.4 '%'
)
  union ( ["Assessment, Performed": "Osteoporosis Risk Assessment Instrument"] ORAI
  where ORAI.result >= 9
)
  union ( ["Assessment, Performed": "Osteoporosis Index of Risk panel"] OSIRIS
  where OSIRIS.result < 1.0
)
  union ( ["Assessment, Performed": "Osteoporosis Self-Assessment Tool"] OST
  where OST.result < 2.0
)
) ) RiskAssessment
  where start of Global."NormalizeInterval" ( RiskAssessment.relevantDatetime, RiskAssessment.relevantPeriod ) before First("DXA Scan Order During Measurement Period").authorDatetime
```

4 Parent History of Hip Fracture Assessment

["Assessment, Performed": "History of hip fracture in parent"] ParentFractureHistory
 where start of Global."NormalizeInterval" (ParentFractureHistory.relevantDatetime, ParentFractureHistory.relevantPeriod) before start of "Measurement Period"

4 Qualifying Encounter

(["Encounter, Performed": "Office Visit"]
 union ["Encounter, Performed": "Preventive Care Services Established Office Visit, 18 and Up"]
 union ["Encounter, Performed": "Unlisted preventive medicine service"]
 union ["Encounter, Performed": "Preventive Care Services Initial Office Visit, 18 and Up"]
 union ["Encounter, Performed": "Outpatient Consultation"]
 union ["Encounter, Performed": "Online Assessments"]
 union ["Encounter, Performed": "Telephone Visits"]) ValidEncounters
 where ValidEncounters.relevantPeriod during day of "Measurement Period"

4 SDE Ethnicity

["Patient Characteristic Ethnicity": "Ethnicity"]

4 SDE Payer

["Patient Characteristic Payer": "Payer"]

4 SDE Race

["Patient Characteristic Race": "Race"]

4 SDE Sex

["Patient Characteristic Sex": "ONC Administrative Sex"]

Functions

4 DiagnosisInPatientHistory(Diagnosis List<"Diagnosis">)

Diagnosis Dx
 where Dx.prevalencePeriod starts on or before day of
 end of "Measurement Period"

4 Global.NormalizeInterval(pointInTime DateTime, period Interval<DateTime>)

if pointInTime is not null then Interval[pointInTime, pointInTime]
 else if period is not null then period
 else null as Interval<DateTime>

4 ProcedureInPatientHistory(Procedure List<"Procedure, Performed">)

Procedure Proc
 where Global."NormalizeInterval" (Proc.relevantDatetime, Proc.relevantPeriod) ends on or before day of
 end of "Measurement Period"

Terminology

- code "Alcoholic drinks per drinking day - Reported" ("LOINC Code (11287-0)")
- code "Body mass index (BMI) [Ratio]" ("LOINC Code (39156-5)")
- code "Female" ("AdministrativeGender Code (F)")
- code "Left (qualifier value)" ("SNOMEDCT Code (7771000)")
- code "Major osteoporotic fracture 10-year probability [Likelihood] Fracture Risk Assessment" ("LOINC Code (90265-0)")
- code "Osteoporosis Index of Risk panel" ("LOINC Code (98133-2)")
- code "Osteoporosis Risk Assessment Instrument" ("LOINC Code (98139-9)")
- code "Osteoporosis Self-Assessment Tool" ("LOINC Code (98146-4)")
- code "Right (qualifier value)" ("SNOMEDCT Code (24028007)")
- code "Unlisted preventive medicine service" ("CPT Code (99429)")
- valueset "Amenorrhoea" (2.16.840.1.113883.3.464.1003.1022)
- valueset "Ankylosing Spondylitis" (2.16.840.1.113883.3.464.1003.113.12.1045)
- valueset "Aromatase Inhibitors" (2.16.840.1.113883.3.464.1003.196.12.1265)
- valueset "Bilateral Oophorectomy" (2.16.840.1.113883.3.526.3.471)
- valueset "Bone Marrow Transplant" (2.16.840.1.113883.3.666.5.336)
- valueset "Chemotherapy" (2.16.840.1.113883.3.526.3.485)
- valueset "Chronic Liver Disease" (2.16.840.1.113883.3.464.1003.199.12.1035)
- valueset "Chronic Malnutrition" (2.16.840.1.113883.3.464.1003.199.12.1036)
- valueset "Cushings Syndrome" (2.16.840.1.113883.3.464.1003.117.12.1009)
- valueset "DXA (Dual energy Xray Absorptiometry) Scan" (2.16.840.1.113883.3.464.1003.113.12.1051)
- valueset "Eating Disorders" (2.16.840.1.113883.3.464.1003.1039)
- valueset "Ehlers Danlos Syndrome" (2.16.840.1.113883.3.464.1003.113.12.1047)
- valueset "End Stage Renal Disease" (2.16.840.1.113883.3.526.3.353)
- valueset "Ethnicity" (2.16.840.1.114222.4.11.837)
- valueset "Evidence of Bilateral Oophorectomy" (2.16.840.1.113883.3.464.1003.1048)
- valueset "Gastric Bypass Surgery" (2.16.840.1.113883.3.464.1003.198.12.1050)
- valueset "Glucocorticoids (oral only)" (2.16.840.1.113883.3.464.1003.196.12.1266)
- valueset "History of hip fracture in parent" (2.16.840.1.113883.3.464.1003.113.12.1040)
- valueset "Hyperparathyroidism" (2.16.840.1.113883.3.464.1003.117.12.1016)
- valueset "Hyperthyroidism" (2.16.840.1.113883.3.464.1003.117.12.1015)
- valueset "Kidney Transplant" (2.16.840.1.113883.3.464.1003.109.12.1012)
- valueset "Lupus" (2.16.840.1.113883.3.464.1003.117.12.1010)
- valueset "Major Transplant" (2.16.840.1.113883.3.464.1003.198.12.1075)
- valueset "Malabsorption Syndromes" (2.16.840.1.113883.3.464.1003.199.12.1050)
- valueset "Marfan's Syndrome" (2.16.840.1.113883.3.464.1003.113.12.1048)
- valueset "Multiple Myeloma" (2.16.840.1.113883.3.464.1003.1011)
- valueset "Office Visit" (2.16.840.1.113883.3.464.1003.101.12.1001)
- valueset "ONC Administrative Sex" (2.16.840.1.113762.1.4.1)
- valueset "Online Assessments" (2.16.840.1.113883.3.464.1003.101.12.1089)
- valueset "Osteogenesis Imperfecta" (2.16.840.1.113883.3.464.1003.113.12.1044)
- valueset "Osteopenia" (2.16.840.1.113883.3.464.1003.113.12.1049)
- valueset "Osteoporosis" (2.16.840.1.113883.3.464.1003.113.12.1038)
- valueset "Osteoporotic Fractures" (2.16.840.1.113883.3.464.1003.113.12.1050)
- valueset "Outpatient Consultation" (2.16.840.1.113883.3.464.1003.101.12.1008)
- valueset "Payer" (2.16.840.1.114222.4.11.3591)
- valueset "Premature Menopause" (2.16.840.1.113883.3.464.1003.1013)
- valueset "Preventive Care Services Established Office Visit, 18 and Up" (2.16.840.1.113883.3.464.1003.101.12.1025)
- valueset "Preventive Care Services Initial Office Visit, 18 and Up" (2.16.840.1.113883.3.464.1003.101.12.1023)
- valueset "Psoriatic Arthritis" (2.16.840.1.113883.3.464.1003.113.12.1046)
- valueset "Race" (2.16.840.1.114222.4.11.836)
- valueset "Rheumatoid Arthritis" (2.16.840.1.113883.3.464.1003.113.12.1005)

- valueset "Telephone Visits" (2.16.840.1.113883.3.464.1003.101.12.1080)
- valueset "Type 1 Diabetes" (2.16.840.1.113883.3.464.1003.103.12.1020)
- valueset "Unilateral Oophorectomy Left" (2.16.840.1.113883.3.464.1003.1028)
- valueset "Unilateral Oophorectomy Right" (2.16.840.1.113883.3.464.1003.1032)
- valueset "Unilateral Oophorectomy, Unspecified Laterality" (2.16.840.1.113883.3.464.1003.1035)

Data Criteria (QDM Data Elements)

- "Assessment, Performed: Alcoholic drinks per drinking day - Reported" using "Alcoholic drinks per drinking day - Reported (LOINC Code 11287-0)"
- "Assessment, Performed: History of hip fracture in parent" using "History of hip fracture in parent (2.16.840.1.113883.3.464.1003.113.12.1040)"
- "Assessment, Performed: Major osteoporotic fracture 10-year probability [Likelihood] Fracture Risk Assessment" using "Major osteoporotic fracture 10-year probability [Likelihood] Fracture Risk Assessment (LOINC Code 90265-0)"
- "Assessment, Performed: Osteoporosis Index of Risk panel" using "Osteoporosis Index of Risk panel (LOINC Code 98133-2)"
- "Assessment, Performed: Osteoporosis Risk Assessment Instrument" using "Osteoporosis Risk Assessment Instrument (LOINC Code 98139-9)"
- "Assessment, Performed: Osteoporosis Self-Assessment Tool" using "Osteoporosis Self-Assessment Tool (LOINC Code 98146-4)"
- "Diagnosis: Amenorrhea" using "Amenorrhea (2.16.840.1.113883.3.464.1003.1022)"
- "Diagnosis: Ankylosing Spondylitis" using "Ankylosing Spondylitis (2.16.840.1.113883.3.464.1003.113.12.1045)"
- "Diagnosis: Chronic Liver Disease" using "Chronic Liver Disease (2.16.840.1.113883.3.464.1003.199.12.1035)"
- "Diagnosis: Chronic Malnutrition" using "Chronic Malnutrition (2.16.840.1.113883.3.464.1003.199.12.1036)"
- "Diagnosis: Cushings Syndrome" using "Cushings Syndrome (2.16.840.1.113883.3.464.1003.117.12.1009)"
- "Diagnosis: Eating Disorders" using "Eating Disorders (2.16.840.1.113883.3.464.1003.1039)"
- "Diagnosis: Ehlers Danlos Syndrome" using "Ehlers Danlos Syndrome (2.16.840.1.113883.3.464.1003.113.12.1047)"
- "Diagnosis: End Stage Renal Disease" using "End Stage Renal Disease (2.16.840.1.113883.3.526.3.353)"
- "Diagnosis: Hyperparathyroidism" using "Hyperparathyroidism (2.16.840.1.113883.3.464.1003.117.12.1016)"
- "Diagnosis: Hyperthyroidism" using "Hyperthyroidism (2.16.840.1.113883.3.464.1003.117.12.1015)"
- "Diagnosis: Lupus" using "Lupus (2.16.840.1.113883.3.464.1003.117.12.1010)"
- "Diagnosis: Malabsorption Syndromes" using "Malabsorption Syndromes (2.16.840.1.113883.3.464.1003.199.12.1050)"
- "Diagnosis: Marfan's Syndrome" using "Marfan's Syndrome (2.16.840.1.113883.3.464.1003.113.12.1048)"
- "Diagnosis: Multiple Myeloma" using "Multiple Myeloma (2.16.840.1.113883.3.464.1003.1011)"
- "Diagnosis: Osteogenesis Imperfecta" using "Osteogenesis Imperfecta (2.16.840.1.113883.3.464.1003.113.12.1044)"
- "Diagnosis: Osteopenia" using "Osteopenia (2.16.840.1.113883.3.464.1003.113.12.1049)"
- "Diagnosis: Osteoporosis" using "Osteoporosis (2.16.840.1.113883.3.464.1003.113.12.1038)"
- "Diagnosis: Osteoporotic Fractures" using "Osteoporotic Fractures (2.16.840.1.113883.3.464.1003.113.12.1050)"
- "Diagnosis: Premature Menopause" using "Premature Menopause (2.16.840.1.113883.3.464.1003.1013)"
- "Diagnosis: Psoriatic Arthritis" using "Psoriatic Arthritis (2.16.840.1.113883.3.464.1003.113.12.1046)"
- "Diagnosis: Rheumatoid Arthritis" using "Rheumatoid Arthritis (2.16.840.1.113883.3.464.1003.113.12.1005)"
- "Diagnosis: Type 1 Diabetes" using "Type 1 Diabetes (2.16.840.1.113883.3.464.1003.103.12.1020)"
- "Diagnostic Study, Order: DXA (Dual energy Xray Absorptiometry) Scan" using "DXA (Dual energy Xray Absorptiometry) Scan (2.16.840.1.113883.3.464.1003.113.12.1051)"
- "Encounter, Performed: Office Visit" using "Office Visit (2.16.840.1.113883.3.464.1003.101.12.1001)"
- "Encounter, Performed: Online Assessments" using "Online Assessments (2.16.840.1.113883.3.464.1003.101.12.1089)"
- "Encounter, Performed: Outpatient Consultation" using "Outpatient Consultation (2.16.840.1.113883.3.464.1003.101.12.1008)"
- "Encounter, Performed: Preventive Care Services Established Office Visit, 18 and Up" using "Preventive Care Services Established Office Visit, 18 and Up (2.16.840.1.113883.3.464.1003.101.12.1025)"
- "Encounter, Performed: Preventive Care Services Initial Office Visit, 18 and Up" using "Preventive Care Services Initial Office Visit, 18 and Up (2.16.840.1.113883.3.464.1003.101.12.1023)"
- "Encounter, Performed: Telephone Visits" using "Telephone Visits (2.16.840.1.113883.3.464.1003.101.12.1080)"
- "Encounter, Performed: Unlisted preventive medicine service" using "Unlisted preventive medicine service (CPT Code 99429)"
- "Medication, Active: Aromatase Inhibitors" using "Aromatase Inhibitors (2.16.840.1.113883.3.464.1003.196.12.1265)"
- "Medication, Active: Glucocorticoids (oral only)" using "Glucocorticoids (oral only) (2.16.840.1.113883.3.464.1003.196.12.1266)"
- "Medication, Order: Aromatase Inhibitors" using "Aromatase Inhibitors (2.16.840.1.113883.3.464.1003.196.12.1265)"
- "Patient Characteristic Ethnicity: Ethnicity" using "Ethnicity (2.16.840.1.114222.4.11.837)"
- "Patient Characteristic Payer: Payer" using "Payer (2.16.840.1.114222.4.11.3591)"
- "Patient Characteristic Race: Race" using "Race (2.16.840.1.114222.4.11.836)"
- "Patient Characteristic Sex: Female" using "Female (AdministrativeGender Code F)"
- "Patient Characteristic Sex: ONC Administrative Sex" using "ONC Administrative Sex (2.16.840.1.113762.1.4.1)"
- "Physical Exam, Performed: Body mass index (BMI) [Ratio]" using "Body mass index (BMI) [Ratio] (LOINC Code 39156-5)"
- "Procedure, Performed: Bilateral Oophorectomy" using "Bilateral Oophorectomy (2.16.840.1.113883.3.526.3.471)"
- "Procedure, Performed: Bone Marrow Transplant" using "Bone Marrow Transplant (2.16.840.1.113883.3.666.5.336)"
- "Procedure, Performed: Chemotherapy" using "Chemotherapy (2.16.840.1.113883.3.526.3.485)"
- "Procedure, Performed: Evidence of Bilateral Oophorectomy" using "Evidence of Bilateral Oophorectomy (2.16.840.1.113883.3.464.1003.1048)"
- "Procedure, Performed: Gastric Bypass Surgery" using "Gastric Bypass Surgery (2.16.840.1.113883.3.464.1003.198.12.1050)"
- "Procedure, Performed: Kidney Transplant" using "Kidney Transplant (2.16.840.1.113883.3.464.1003.109.12.1012)"
- "Procedure, Performed: Major Transplant" using "Major Transplant (2.16.840.1.113883.3.464.1003.198.12.1075)"
- "Procedure, Performed: Unilateral Oophorectomy Left" using "Unilateral Oophorectomy Left (2.16.840.1.113883.3.464.1003.1028)"
- "Procedure, Performed: Unilateral Oophorectomy Right" using "Unilateral Oophorectomy Right (2.16.840.1.113883.3.464.1003.1032)"
- "Procedure, Performed: Unilateral Oophorectomy, Unspecified Laterality" using "Unilateral Oophorectomy, Unspecified Laterality (2.16.840.1.113883.3.464.1003.1035)"

Supplemental Data Elements

▲ SDE Ethnicity

["Patient Characteristic Ethnicity": "Ethnicity"]

▲ SDE Payer

["Patient Characteristic Payer": "Payer"]

▲ SDE Race

["Patient Characteristic Race": "Race"]

▲ SDE Sex

["Patient Characteristic Sex": "ONC Administrative Sex"]

Risk Adjustment Variables

None

Measure Set	None
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