Bone density evaluation for patients with prostate cancer and receiving androgen deprivation therapy

Process

eCQM Identifier (Measure Authoring Tool) 645  eCQM Version Number 5.1.000

NQF Number Not Applicable  GUID 977b302e-cdf3-4ba2-8020-5e09d93ad18

Measurement Period January 1, 20XX through December 31, 20XX  Measure Steward Oregon Urology  Measure Developer Oregon Urology  Endorsed By None

Description

Patients determined as having prostate cancer who are currently starting or undergoing androgen deprivation therapy (ADT), for an anticipated period of 12 months or greater and who receive an initial bone density evaluation. The bone density evaluation must be prior to the start of ADT or within 3 months of the start of ADT.

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Measure Scoring Proportion  Measure Type Process  Stratification None  Risk Adjustment None  Rate Aggregation None

Rationale

Androgen suppression as a treatment for prostate cancer can cause osteoporosis (Qaseem, 2008). Men undergoing prolonged androgen deprivation therapy (ADT) incur bone loss at a rate higher than menopausal women (Guise, 2007). In preserving bone health, the goal is to prevent or treat osteopenia/osteoporosis for the patient on ADT and to prevent or delay skeletal related events. The National Osteoporosis Foundation recommendations including a baseline assessment of bone density with a DEXA scan and daily calcium and Vitamin D supplementation (Watts, 2012). The DEXA scan is the gold standard for bone density screening. Men at risk for adverse bone consequences from chronic ADT do not always receive care according to evidence-based guidelines. These findings call for improved processes that standardize evidence-based practice including baseline and follow up bone density assessment (Watts, 2012).

Clinical Recommendation

Bone density screening should be performed at the start of Androgen Deprivation Therapy (ADT) for prostate cancer. It should also be performed every 2 years for the patient with continued ADT or for patients with known osteoporosis.

Current insurance practice is to possibly cover the cost of bone density screening if osteoporosis is known or if there is a high-risk drug. Some patients choose to delay bone density screening until after ADT is started and they therefore have insurance authorization due to the administration of a high-risk drug.

Improvement Notation

A higher score indicates better quality

Reference Type: CITATION


Reference Type: CITATION


Reference Type: CITATION


Reference Type: CITATION


Definition

Data Criteria Value Set 2.16.840.1.113762.1.4.1151.38 DEXA, Dual Energy Xray Absorptiometry, Bone Density for Urology Care contains 2 LOINC codes identifying the axial and appendicular skeleton and will meet the measure


https://www.jacr.org/article/S1546-1440(17)30198-9/pdf

https://www.jaci.org/content/97/6/1802.full.pdf
Guidance

This eCQM is a patient-based measure.

This version of the eCQM uses QDM version 5.5. Please refer to the eCQI resource center (https://ecqi.healthit.gov/qdm) for more information on the QDM.

Transmission Format

TBD

Initial Population

Male patients with a qualifying encounter in the measurement period AND with a diagnosis of prostate cancer AND with an order for ADT or an active medication of ADT with an intent for treatment greater than or equal to 12 months during the measurement period

Denominator

Equals Initial Population

Denominator Exclusions

None

Numerator

Patients with a bone density evaluation within the two years prior to the start of or less than three months after the start of ADT treatment

Numerator Exclusions

Not Applicable

Denominator Exceptions

Patient refused recommendation for a bone density evaluation after the start of ADT therapy

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

"Patient is Male"
and "Has Qualifying Encounter"
and "Androgen Deprivation Therapy Start Date" is not null

▲ Denominator

"Initial Population"

▲ Denominator Exclusions

None

▲ Numerator

"Has Baseline DEXA Scan Two Years Prior to the Start of or Less than Three Months After the Start of ADT"

▲ Numerator Exclusions

None

▲ Denominator Exceptions

exists ( "No Bone Density Scan Ordered Due to Patient Refusal" )
or exists ( "No Bone Density Scan Performed Due to Patient Refusal" )

▲ Stratification

None

Definitions

▲ Androgen Deprivation Therapy for Urology Care Medication Active Start Dates

["Medication, Active": "Androgen deprivation therapy for Urology Care"] ADTActive
return Global.EarliestOf ( ADTActive.relevantDatetime, ADTActive.relevantPeriod )

▲ Androgen Deprivation Therapy for Urology Care Medication Order Start Dates

["Medication, Order": "Androgen deprivation therapy for Urology Care"] ADTOrder
return Global.EarliestOf ( ADTOrder.authorDate, ADTOrder.relevantPeriod )
Androgen Deprivation Therapy Start Date
First("Androgen Deprivation Therapy for Urology Care Medication Active Start Dates" union "Androgen Deprivation Therapy for Urology Care Medication Order Start Dates") ADTTherapyDate with "Prostate Cancer Diagnosis" ProstateCancer such that ADTTherapyDate during ProstateCancer.prevalencePeriod with ["Procedure, Order": "Injection of leuprolide acetate for twelve month period (regime/therapy)"] TwelveMonthADTTherapy such that TwelveMonthADTTherapy.authorDatetime on or after ADTTherapyDate where ADTTherapyDate before end of "Measurement Period" sort ascending

Denominator
"Initial Population"

Denominator Exception
exists ("No Bone Density Scan Ordered Due to Patient Refusal") or exists ("No Bone Density Scan Performed Due to Patient Refusal")

Has Baseline DEXA Scan Two Years Prior to the Start of or Less than Three Months After the Start of ADT
exists ( ["Diagnostic Study, Order": "DEXA Dual Energy Xray Absorptiometry, Bone Density for Urology Care"] DEXAOrdered with "Androgen Deprivation Therapy Start Date" ADTTherapyStartDate such that DEXAOrdered.authorDatetime 3 months or less after ADTTherapyStartDate or DEXAOrdered.authorDatetime 2 years or less before ADTTherapyStartDate ) union ( ["Diagnostic Study, Performed": "DEXA Dual Energy Xray Absorptiometry, Bone Density for Urology Care"] DEXAPerformed with "Androgen Deprivation Therapy Start Date" ADTTherapyStartDate such that Global."NormalizeInterval" (DEXAPerformed.relevantDatetime, DEXAPerformed.relevantPeriod) 3 months or less after ADTTherapyStartDate or Global."NormalizeInterval" (DEXAOrdered.relevantDatetime, DEXAOrdered.relevantPeriod) 2 years or less before ADTTherapyStartDate)

Has Qualifying Encounter
exists ["Encounter, Performed": "Office Visit"] Encounter where Encounter.relevantPeriod during "Measurement Period"

Initial Population
"Patient is Male" and "Has Qualifying Encounter" and "Androgen Deprivation Therapy Start Date" is not null

No Bone Density Scan Ordered Due to Patient Refusal
["Diagnostic Study, Not Ordered": "DEXA Dual Energy Xray Absorptiometry, Bone Density for Urology Care"] DEXANotOrdered where DEXANotOrdered.authorDatetime 3 months or less after "Androgen Deprivation Therapy Start Date" and DEXANotOrdered.negationRationale in "Patient Reason refused"

No Bone Density Scan Performed Due to Patient Refusal
["Diagnostic Study, Not Performed": "DEXA Dual Energy Xray Absorptiometry, Bone Density for Urology Care"] DEXANotPerformed where DEXANotPerformed.authorDatetime 3 months or less after "Androgen Deprivation Therapy Start Date" and DEXANotPerformed.negationRationale in "Patient Reason refused"

Numerator
"Has Baseline DEXA Scan Two Years Prior to the Start of or Less than Three Months After the Start of ADT"

Patient is Male
exists ["Patient Characteristic Sex": "Male"]

Prostate Cancer Diagnosis
["Diagnosis": "Prostate Cancer"] ProstateCancer where ProstateCancer.prevalencePeriod starts same day or before end "Measurement Period"

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"]

Functions
Global.Earliest(period Interval<DateTime>)
if (HasStart(period)) then start of period else end of period
Global.EarliestOf(pointInTime DateTime, period Interval<DateTime>)
Earliest(NormalizeInterval(pointInTime, period))

Global.HasStart(period Interval<DateTime>)
not (start of period is null
or start of period = minimum DateTime)

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>

### Terminology
- code "Injection of leuprolide acetate for twelve month period (regime/therapy)" ("SNOMEDCT Code 456381000124102")
- code "Male" ("AdministrativeGender Code (M)"")
- valueset "DEXA Dual Energy Xray Absorptiometry, Bone Density for Urology Care" (2.16.840.1.113762.1.4.1151.48)
- valueset "Ethnicity" (2.16.840.1.114222.4.11.837)
- 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 "Patient Reason refused" (2.16.840.1.113883.3.600.791)
- valueset "Race" (2.16.840.1.114222.4.11.836)

### Data Criteria (QDM Data Elements)
- "Diagnosis: Prostate Cancer" using "Prostate Cancer (2.16.840.1.113883.3.526.3.319)"
- "Diagnostic Study, Not Ordered: DEXA Dual Energy Xray Absorptiometry, Bone Density for Urology Care" using "DEXA Dual Energy Xray Absorptiometry, Bone Density for Urology Care (2.16.840.1.113762.1.4.1151.38)"
- "Diagnostic Study, Not Performed: DEXA Dual Energy Xray Absorptiometry, Bone Density for Urology Care" using "DEXA Dual Energy Xray Absorptiometry, Bone Density for Urology Care (2.16.840.1.113762.1.4.1151.38)"
- "Diagnostic Study, Order: DEXA Dual Energy Xray Absorptiometry, Bone Density for Urology Care" using "DEXA Dual Energy Xray Absorptiometry, Bone Density for Urology Care (2.16.840.1.113762.1.4.1151.38)"
- "Diagnostic Study, Performed: DEXA Dual Energy Xray Absorptiometry, Bone Density for Urology Care" using "DEXA Dual Energy Xray Absorptiometry, Bone Density for Urology Care (2.16.840.1.113762.1.4.1151.38)"
- "Encounter, Performed: Office Visit" using "Office Visit (2.16.840.1.113883.3.464.1003.101.12.1001)"
- "Medication, Active: Androgen deprivation therapy for Urology Care" using "Androgen deprivation therapy for Urology Care (2.16.840.1.113762.1.4.1151.48)"
- "Medication, Order: Androgen deprivation therapy for Urology Care" using "Androgen deprivation therapy for Urology Care (2.16.840.1.113762.1.4.1151.48)"
- "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: Male" using "Male (AdministrativeGender Code M)"
- "Patient Characteristic Sex: ONC Administrative Sex" using "ONC Administrative Sex (2.16.840.1.113762.1.4.1)"
- "Procedure, Order: Injection of leuprolide acetate for twelve month period (regime/therapy)" using "Injection of leuprolide acetate for twelve month period (regime/therapy) (SNOMEDCT Code 456381000124102)"

### 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