

eCQM Title	Bone Density Evaluation for Patients with Prostate Cancer and Receiving Androgen Deprivation Therapy		
eCQM Identifier (Measure Authoring Tool)	645	eCQM Version Number	8.2.000
CBE Number	Not Applicable	GUID	977b302e-cdf3-4ba2-8020-5e099d93ad18
Measurement Period	January 1, 20XX through December 31, 20XX		
Measure Steward	Oregon Urology		
Measure Developer	Oregon Urology		
Endorsed By	None		
Description	Percentage of 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.		
Copyright	Limited proprietary coding is contained in the measure specifications for convenience. Users of the proprietary code sets should obtain all necessary licenses from the owners of these code sets. Oregon Urology Institute (OUI) and Large Urology Group Practice Association (LUGPA) disclaim all liability for use or accuracy of third party codes contained in the specifications. CPT(R) contained in the Measure specifications is copyright 2004-2023. American Medical Association. LOINC(R) copyright 2004-2023 Regenstrief Institute, Inc. This material contains SNOMED Clinical Terms(R) (SNOMED CT(R)) copyright 2004-2023. International Health Terminology Standards Development Organisation. ICD-10 copyright 2023 World Health Organization. All Rights Reserved.		
Disclaimer	The performance measure is not a clinical guideline and does not establish a standard of medical care, and has not been tested for all potential applications. THE MEASURES AND SPECIFICATIONS ARE PROVIDED "AS IS" WITHOUT WARRANTY OF ANY KIND. Due to technical limitations, registered trademarks are indicated by (R) or [R] and unregistered trademarks are indicated by (TM) or [TM].		
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 dual energy X-ray absorptiometry (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 Statement	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	Reference Type: CITATION Reference Text: "Cosman, F., deBeur, S., LeBoff, M., et al. (2014). Clinician's guide to prevention and treatment of osteoporosis. Osteoporosis International, 25(10), 2359–2381. Retrieved from http://link.springer.com/article/10.1007/s00198-014-2794-z"		
Reference	Reference Type: CITATION Reference Text: "Finkelstein, J., & Yu, E. (2017). Clinical manifestations, diagnosis, and evaluation of osteoporosis in men. Retrieved from https://www.uptodate.com/contents/clinical-manifestations-diagnosis-and-evaluation-of-osteoporosis-in-men/print?source=see_link"		
Reference	Reference Type: CITATION Reference Text: "Guise, T., Oefelein, M., Eastham, J., et al. (2007). Estrogenic side effects of androgen deprivation therapy. Reviews in Urology, 9(4), 163-180. Retrieved from https://www.researchgate.net/profile/Celestia_Higano/publication/5619579_Estrogenic_side_effects_of_androgen_deprivation_therapy/inks/0c960526434483f4fd000000.pdf"		
Reference	Reference Type: CITATION Reference Text: "Qaseem, A., Snow, V., Shekelle, P., et al. (2008). Annals of Internal Medicine. Screening for osteoporosis in men: A clinical practice guideline from the American College of Physicians, 2008. Annals of Internal Medicine, 148(9), 680-684. Retrieved from http://annals.org/aim/article/740825/screening-osteoporosis-men-clinical-practice-guideline-from-american-college-physicians"		
Reference	Reference Type: CITATION Reference Text: "Ward, R., Roberts, C., Bencardino, J., et al. (2016). American College of Radiology: ACR Appropriateness Criteria (R) –Osteoporosis and bone mineral density. Retrieved from https://www.jacr.org/article/S1546-1440(17)30198-9/pdf"		
Reference	Reference Type: CITATION Reference Text: "Watts, N., Adler, R., Bilezikian, J., et al. (2012, June). Osteoporosis in men: An Endocrine Society clinical practice guideline. Journal of Clinical Endocrinology & Metabolism, 97(6), 1802–1822. Retrieved from https://academic.oup.com/jcem/article-lookup/doi/10.1210/jc.2011-3045"		
Definition	DEXA - Dual Energy X-ray Absorptiometry - A scan that measures the bone of the spine, hip or total body and measures bone mineral density. It is considered one of the most accurate measurements. PDXA - Peripheral Dual Energy X-ray Absorptiometry - Bone mineral density measurement of the wrist, heel or finger. First Androgen Deprivation Therapy - The first Androgen Deprivation Therapy (ADT) is measured as the first order or administration of ADT for an anticipated period of 12 months or greater to a patient with prostate cancer.		
Guidance	In order to capture the practitioner's intent of androgen deprivation therapy (ADT) for a period of 12 months or greater, SNOMEDCT 456381000124102 which is Injection of leuprolide acetate for twelve-month period (regime/therapy) is the correct code. This eCQM is a patient-based measure. 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.		
Transmission Format	TBD		
Initial Population	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 AND order for ADT in 3 months before to 9 months after the start of 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 the bone density evaluation at the time ordered or did not have it performed within 3 months after the start of ADT		
Supplemental Data Elements	For every patient evaluated by this measure also identify payer, race, ethnicity and sex		

Table of Contents

- [Population Criteria](#)
- [Definitions](#)
- [Functions](#)
- [Terminology](#)
- [Data Criteria \(QDM Data Elements\)](#)
- [Supplemental Data Elements](#)
- [Risk Adjustment Variables](#)

Population Criteria

Initial Population	"Has Qualifying Encounter" and exists "Order for 12 Months of ADT in 3 Months Before to 9 Months After Start of Measurement Period"
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.authorDatetime, ADTOrder.relevantPeriod)
Denominator	"Initial Population"
Denominator Exclusion	exists ("No Bone Density Scan Ordered Due to Patient Refusal") or exists ("No Bone Density Scan Performed Due to Patient Refusal")
First ADT in 3 Months Before to 9 Months After Start of Measurement Period	First(("Androgen Deprivation Therapy for Urology Care Medication Active Start Dates" union "Androgen Deprivation Therapy for Urology Care Medication Order Start Dates") ADTDate with "Prostate Cancer Diagnosis" ProstateCancer such that ADTDate during ProstateCancer.prevalencePeriod and ADTDate during Interval[start of "Measurement Period" - 3 months, start of "Measurement Period" + 9 months] sort ascending)
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 "Order for 12 Months of ADT in 3 Months Before to 9 Months After Start of Measurement Period" OrderTwelveMonthsADT such that DEXAOrdered.authorDatetime 3 months or less on or after day of OrderTwelveMonthsADT.authorDatetime and DEXAOrdered.authorDatetime 2 years or less before day of OrderTwelveMonthsADT.authorDatetime) union (["Diagnostic Study, Performed"; "DEXA Dual Energy Xray Absorptiometry, Bone Density for Urology Care"] DEXAPerformed with "Order for 12 Months of ADT in 3 Months Before to 9 Months After Start of Measurement Period" OrderTwelveMonthsADT such that Global."NormalzeInterval" (DEXAPerformed.relevantDatetime, DEXAPerformed.relevantPeriod) 3 months or less on or after day of OrderTwelveMonthsADT.authorDatetime or Global."NormalzeInterval" (DEXAPerformed.relevantDatetime, DEXAPerformed.relevantPeriod) 2 years or less before day of OrderTwelveMonthsADT.authorDatetime))
Has Qualifying Encounter	exists ["Encounter, Performed"; "Office Visit"] Encounter where Encounter.relevantPeriod during day of "Measurement Period"
Initial Population	"Has Qualifying Encounter" and exists "Order for 12 Months of ADT in 3 Months Before to 9 Months After Start of Measurement Period"
No Bone Density Scan Ordered Due to Patient Refusal	["Diagnostic Study, Not Ordered"; "DEXA Dual Energy Xray Absorptiometry, Bone Density for Urology Care"] DEXANotOrdered with "Order for 12 Months of ADT in 3 Months Before to 9 Months After Start of Measurement Period" OrderTwelveMonthsADT such that DEXANotOrdered.authorDatetime 3 months or less on or after day of OrderTwelveMonthsADT.authorDatetime and DEXANotOrdered.negativeRationale in "Patient Declined"
No Bone Density Scan Performed Due to Patient Refusal	["Diagnostic Study, Not Performed"; "DEXA Dual Energy Xray Absorptiometry, Bone Density for Urology Care"] DEXANotPerformed with "Order for 12 Months of ADT in 3 Months Before to 9 Months After Start of Measurement Period" OrderTwelveMonthsADT such that DEXANotPerformed.authorDatetime 3 months or less on or after day of OrderTwelveMonthsADT.authorDatetime and DEXANotPerformed.negativeRationale in "Patient Declined"
Numerator	"Has Baseline DEXA Scan Two Years Prior to the Start of or Less than Three Months After the Start of ADT"
Order for 12 Months of ADT in 3 Months Before to 9 Months After Start of Measurement Period	["Procedure, Order"; "Injection of leuprolide acetate for twelve month period (regime/therapy)"] OrderTwelveMonthADT with "First ADT in 3 Months Before to 9 Months After Start of Measurement Period" FirstADTMP such that OrderTwelveMonthADT.authorDatetime on or after FirstADTMP and OrderTwelveMonthADT.authorDatetime during Interval[start of "Measurement Period" - 3 months, start of "Measurement Period" + 9 months]
Prostate Cancer Diagnosis	["Diagnosis"; "Prostate Cancer"] ProstateCancer where ProstateCancer.prevalencePeriod overlaps day of "Measurement Period"
SDE Ethnicity	["Patient Characteristic Ethnicity"; "Ethnicity"]
SDE Payer	["Patient Characteristic Payer"; "Payer Type"]
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)")
- valueSet "Androgen deprivation therapy for Urology Care" (2.16.840.1.113762.1.4.1151.48)
- valueSet "DEXA Dual Energy Xray Absorptiometry, Bone Density for Urology Care" (2.16.840.1.113762.1.4.1151.38)
- 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 Declined" (2.16.840.1.113883.3.526.3.1582)
- valueSet "Payer Type" (2.16.840.1.114222.4.11.3591)
- valueSet "Prostate Cancer" (2.16.840.1.113883.3.526.3.319)
- 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, 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, 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)
- "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 Type" using "Payer Type" (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: 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 Type"]
SDE Race	["Patient Characteristic Race"; "Race"]
SDE Sex	["Patient Characteristic Sex"; "ONC Administrative Sex"]

Risk Adjustment Variables

None

Measure Set	None
-------------	------