

<b>eCQM Title</b>	<b>Intravesical Bacillus-Calmette-Guerin for non-muscle invasive bladder cancer</b>		
<b>eCQM Identifier (Measure Authoring Tool)</b>	646	<b>eCQM Version Number</b>	2.0.000
<b>NQF Number</b>	Not Applicable	<b>GUID</b>	224b1722-ae9-4e7f-97f8-284267fc1b00
<b>Measurement Period</b>	January 1, 20XX through December 31, 20XX		
<b>Measure Steward</b>	Oregon Urology		
<b>Measure Developer</b>	Oregon Urology		
<b>Endorsed By</b>	None		
<b>Description</b>	<p>Percentage of patients initially diagnosed with non-muscle invasive bladder cancer and who received intravesical Bacillus-Calmette-Guerin (BCG) within 6 months of bladder cancer staging.</p> <p>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.</p>		
<b>Copyright</b>	<p>CPT (R) contained in the Measure specifications is copyright 2004-2020. American Medical Association. LOINC(R) copyright 2004-2020 Regenstrief Institute, Inc. This material contains SNOMED Clinical Terms(R) (SNOMED CT[R]) copyright 2004-2020 International Health Terminology Standards Development Organisation. ICD-10 copyright 2020 World Health Organization. All Rights Reserved.</p> <p>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.</p>		
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<b>Measure Scoring</b>	Proportion		
<b>Measure Type</b>	Process		
<b>Stratification</b>	None		
<b>Risk Adjustment</b>	None		
<b>Rate Aggregation</b>	None		
<b>Rationale</b>	<p>Bladder cancer is ranked 10th for new cancer cases in 2020 and is the 9th leading cause of cancer death in the United States. There are 81,400 estimated new cases in 2020 and 17,980 estimated deaths in 2020. In 2016, there were an estimated 699,450 people living with bladder cancer in the United States. Early detection (discovery of cancer in situ or localized to the primary site) is found in 85% of the patients, and with these there is a five-year survival rate of 95.8% for In Situ and 69.2% for Localized. Bladder cancer is rarely found in patients under age 20, with the median age of diagnosis being 73 (NIH SEER State Facts:Bladder Cancer SEER April,2020)</p> <p>NCCN Guidelines for Bladder Cancer (version 6.2020) defines intravesical Bacillus-Calmette-Guerin (BCG) as Category 1 Treatment for Ta - high grade, T1 and Tis non-muscle invasive bladder cancer. Most public data reflects prophylactic or adjuvant use of intravesical therapy with the goal of preventing recurrence or delaying progression to a higher grade or stage. BCG has been shown to be effective as prophylaxis to prevent bladder cancer recurrences following TURBT. The NCCN Bladder Cancer Panel Members recommend BCG as the preferred option over Mitomycin C for adjuvant treatment of high-grade lesions (Ta). BCG is also standard therapy for Primary Tis. Most T1 lesions are high risk and are similarly treated with adjuvant intravesical therapy with BCG being a Category 1 recommendation. (NCCN guidelines 6.2020)</p>		
<b>Clinical Recommendation Statement</b>	<p>Intravesical BCG should be administered within 6 months of the initial diagnosis of non-muscle invasive bladder cancer. It may be administered 3-4 weeks after resection, but there needs to be pathological tumor confirmation and must be withheld if there is traumatic catheterization, bacteriuria, persistent gross hematuria, persistent severe local symptoms or systemic symptoms. The normal induction course is 6 weekly instillations of intravesical BCG (AUA Non-Muscle Invasive Bladder Cancer and AUA Guideline for the Management of Non-muscle Invasive Bladder Cancer: Stages Ta High Risk, T1 and TIS).</p>		
<b>Improvement Notation</b>	<p>A higher score is the preferred result and indicates better quality</p> <p>Reference Type: CITATION</p>		
<b>Reference</b>	<p>Reference Text: 'Chamie K, Saigal CS, Lai J, Hanley JM, Setodji CM, Konety BR, Litwin MS, and Urologic Diseases in America Project, Compliance with Guidelines for Patients with Bladder Cancer: Variation in the Delivery of Care. Cancer.2011 Dec 1; 117(23): 5392--5401. <a href="https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3206145/">https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3206145/</a>'</p> <p>Reference Type: CITATION</p>		
<b>Reference</b>	<p>Reference Text: 'Chang SS, Boorjian SA, Chou R, Clark PE, Daneshmand S, Konety BR, Pruthi R, Quale DZ, Ritch CR, Seigne, JD, Skinner EC, Smith NM, and Mckiernan JM. American Urological Association. Non-Muscle Invasive Bladder Cancer, April, 2016. <a href="https://www.auanet.org/education/guidelines/non-muscle-invasive-bladder-cancer.cfm">https://www.auanet.org/education/guidelines/non-muscle-invasive-bladder-cancer.cfm</a>'</p> <p>Reference Type: CITATION</p>		
<b>Reference</b>	<p>Reference Text: 'Hall MC, Chang SS, Dalbagni G, Pruthi RS, Schellhammer PF, Seigne JD, Skinner EC and Wolf S. American Urological Association. Guideline for the Management of Non-muscle Invasive Bladder Cancer: (Stages TA, T1 and TIS: Update (2016). <a href="https://www.auanet.org/education/guidelines/bladder-cancer.cfm">https://www.auanet.org/education/guidelines/bladder-cancer.cfm</a>'</p> <p>Reference Type: CITATION</p>		
<b>Reference</b>	<p>Reference Text: 'NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines). Bladder Cancer. Version 6.2020. <a href="https://www2.tri-kobe.org/nccn/guideline/urological/english/bladder.pdf">https://www2.tri-kobe.org/nccn/guideline/urological/english/bladder.pdf</a>'</p> <p>Reference Type: CITATION</p>		
<b>Reference</b>	<p>Reference Text: 'NIH National Cancer Institute Surveillance, Epidemiology, and End Results Program. SEER Cancer Stat Facts: Bladder Cancer. National Cancer Institute. Bethesda,MD, <a href="https://seer.cancer.gov/statfacts/html/urin.html">https://seer.cancer.gov/statfacts/html/urin.html</a>'</p> <p>Reference Type: CITATION</p>		
<b>Reference</b>	<p>Reference Text: 'PCORI Topic Brief on Comparative Effectiveness of treatments for Non-Muscle-Invasive Bladder Cancer (NMIBC) as prepared by the Pacific Northwest Evidence-based Practice Center, Oregon Health &amp; Science University, Portland, OR, Oct, 2016.] <a href="http://www.pcori.org/sites/default/files/PCORI-Assessment-Options-Advisory-Panel-Fall-2016-Topic-Brief-Non-Muscle-Invasive-Bladder-Cancer.pdf">http://www.pcori.org/sites/default/files/PCORI-Assessment-Options-Advisory-Panel-Fall-2016-Topic-Brief-Non-Muscle-Invasive-Bladder-Cancer.pdf</a>'</p>		

Reference Type: CITATION

<b>Reference</b>	Reference Text: 'Up to Date - Treatment of primary non-muscle invasive urothelial bladder cancer. Literature review current through Dec. 2016. <a href="https://www.uptodate.com/contents/treatment-of-primary-non-muscle-invasive-urothelial-bladder-cancer?source=search_result&amp;search=Treatment%20of%20primary%20non-muscle%20invasive%20urothelial%20bladder%20cancer&amp;selectedTitle=1~150">https://www.uptodate.com/contents/treatment-of-primary-non-muscle-invasive-urothelial-bladder-cancer?source=search_result&amp;search=Treatment%20of%20primary%20non-muscle%20invasive%20urothelial%20bladder%20cancer&amp;selectedTitle=1~150</a> T of primary'
<b>Definition</b>	Intravesical - Within the urinary bladder Bacillus Calmette-Guerin (BCG) - A live attenuated strain of Mycobacterium bovis, first indicated as a tuberculosis vaccine, has had widespread use in intravesical immunotherapy since the 1970's. Tumor location: urinary bladder Histology: urothelial carcinoma Primary Tumor (T) stage: Ta - Noninvasive and high grade Tis - Carcinoma in situ: "flat tumor" T1- tumor invades subepithelial connective tissue (high grade or low grade)  Ta bladder cancer must be high grade Ta only and is supported by the 2016 AUA guidelines and 2018 NCCN guidelines. The BCG dose can be full or partial and can be from any lot or manufacturer.
<b>Guidance</b>	This eCQM is a patient-based measure.  Telehealth encounters are not eligible for this measure because the measure requires a clinical action that cannot be conducted via telehealth.  This version of the eCQM uses QDM version 5.5. Please refer to the eCQI resource center ( <a href="https://ecqi.healthit.gov/qdm">https://ecqi.healthit.gov/qdm</a> ) for more information on the QDM.
<b>Transmission Format</b>	None
<b>Initial Population</b>	All patients initially diagnosed with T1, Tis or high grade Ta non-muscle invasive bladder cancer and a qualified encounter in the measurement period.
<b>Denominator</b>	Equals Initial population
<b>Denominator Exclusions</b>	Immunosuppressed patients, includes HIV and immunocompromised state. Immunosuppressive drug therapy. Active Tuberculosis. Mixed histology urothelial cell carcinoma including micropapillary, plasmacytoid, sarcomatoid, adenocarcinoma and squamous disease. Patients who undergo cystectomy, chemotherapy or radiation within 6 months of Bladder Cancer Staging.
<b>Numerator</b>	Intravesical Bacillus-Calmette Guerin (BCG) instillation for initial dose or series. BCG is initiated within 6 months of the bladder cancer staging and during the measurement period.
<b>Numerator Exclusions</b>	Not Applicable
<b>Denominator Exceptions</b>	Unavailability of BCG
<b>Supplemental Data Elements</b>	For every patient evaluated by this measure also identify payer, race, ethnicity and sex

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## Population Criteria

### Initial Population

exists ( "Bladder Cancer Diagnoses" )  
and "Has Most Recent Bladder Cancer Tumor Staging is Ta HG, Tis, T1"  
and "Has Qualifying Encounter"

### Denominator

"Initial Population"

### Denominator Exclusions

"HIV Diagnosis"  
or exists "Immunocompromised Conditions Diagnosis"  
or exists "Immunosuppressive Drugs"  
or exists "Acute Tuberculosis Diagnosis"  
or exists "Mixed Histology Urothelial Cell Carcinoma"  
or exists "Cystectomy Done"  
or exists "Chemotherapy Exclusion"  
or exists "Radiation Done"

### Numerator

"First BCG Administered" is not null

### Numerator Exclusions

None

### Denominator Exceptions

exists "BCG Not Available Within 6 Months After Bladder Cancer Staging"

#### ▲ Stratification

None

### Definitions

#### ▲ Acute Tuberculosis Diagnosis

["Diagnosis": "Active Tuberculosis for Urology Care"] TB  
with "Most Recent Bladder Cancer Staging Procedure" Staging  
such that TB.prevalencePeriod overlaps after Global."NormalizeInterval" ( Staging.relevantDatetime, Staging.relevantPeriod )

#### ▲ BCG Not Available Within 6 Months After Bladder Cancer Staging

( [ "Medication, Not Administered": "BCG Bacillus Calmette Guerin for Urology Care" ] BCGnotGiven  
with "Most Recent Bladder Cancer Staging Procedure" Staging  
such that BCGnotGiven.authorDatetime 6 months or less after start of Global."NormalizeInterval" ( Staging.relevantDatetime, Staging.relevantPeriod )  
and BCGnotGiven.authorDatetime in "Measurement Period"  
where BCGnotGiven.negotiationRationale in "Unavailability of Bacillus Calmette Guerin for urology care"  
)

#### ▲ Bladder Cancer Diagnoses

["Diagnosis": "Bladder Cancer for Urology Care"] BladderCancer  
where BladderCancer.prevalencePeriod starts before  
end "Measurement Period"

#### ▲ Chemotherapy Exclusion

["Medication, Active": "Chemotherapy for Advanced Cancer"] Chemotherapy  
with "Most Recent Bladder Cancer Staging Procedure" Staging  
such that Global."NormalizeInterval" ( Chemotherapy.relevantDatetime, Chemotherapy.relevantPeriod ) starts 6 months or less before Staging.relevantPeriod

#### ▲ Cystectomy Done

["Procedure, Performed": "Cystectomy for Urology Care"] Cystectomy  
with "Most Recent Bladder Cancer Staging Procedure" Staging  
such that Global.EarliestOf ( Cystectomy.relevantDatetime, Cystectomy.relevantPeriod ) 6 months or less before Staging.relevantPeriod

#### ▲ Denominator

"Initial Population"

#### ▲ Denominator Exception

exists "BCG Not Available Within 6 Months After Bladder Cancer Staging"

#### ▲ Denominator Exclusion

"HIV Diagnosis"  
or exists "Immunocompromised Conditions Diagnosis"  
or exists "Immunosuppressive Drugs"  
or exists "Acute Tuberculosis Diagnosis"  
or exists "Mixed Histology Urothelial Cell Carcinoma"  
or exists "Cystectomy Done"  
or exists "Chemotherapy Exclusion"  
or exists "Radiation Done"

#### ▲ First BCG Administered

First([ "Medication, Administered": "BCG Bacillus Calmette Guerin for Urology Care" ] BCG  
with "Most Recent Bladder Cancer Staging Procedure" Staging  
such that Global."NormalizeInterval"(BCG.relevantDatetime, BCG.relevantPeriod)starts 6 months or less after Staging.relevantPeriod  
and Global."NormalizeInterval"(BCG.relevantDatetime, BCG.relevantPeriod)starts during "Measurement Period"  
sort by start of Global."NormalizeInterval"(relevantDatetime, relevantPeriod)  
)

#### ▲ Has Most Recent Bladder Cancer Tumor Staging is Ta HG, Tis, T1

"Most Recent Bladder Cancer Staging Procedure".result ~ "T1: Urinary tract tumor invades subepithelial connective tissue (finding)"  
or "Most Recent Bladder Cancer Staging Procedure".result ~ "Ta: Noninvasive papillary carcinoma (urinary tract) (finding)"  
or "Most Recent Bladder Cancer Staging Procedure".result ~ "Tis: Carcinoma in situ (flat tumor of urinary bladder) (finding)"  
or "Most Recent Bladder Cancer Staging Procedure".result ~ "Carcinoma in situ of bladder"

#### ▲ Has Qualifying Encounter

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

#### ▲ HIV Diagnosis

exists [ "Diagnosis": "HIV" ] HIV  
with "Most Recent Bladder Cancer Staging Procedure" Staging  
such that HIV.prevalencePeriod starts on or before start of Staging.relevantPeriod

#### ▲ Immunocompromised Conditions Diagnosis

["Diagnosis": "Immunocompromised Conditions"] ImmunocompromisedDiagnosis  
with "Most Recent Bladder Cancer Staging Procedure" Staging  
such that ImmunocompromisedDiagnosis.prevalencePeriod starts on or before start of Global."NormalizeInterval" ( Staging.relevantDatetime, Staging.relevantPeriod )

#### ▲ Immunosuppressive Drugs

["Medication, Active": "Immunosuppressive Drugs for Urology Care"] ImmunosuppressiveDrugs  
with "Most Recent Bladder Cancer Staging Procedure" Staging  
such that Global."NormalizeInterval" ( ImmunosuppressiveDrugs.relevantDatetime, ImmunosuppressiveDrugs.relevantPeriod ) starts on or before  
Staging.relevantPeriod

#### Initial Population

exists ( "Bladder Cancer Diagnoses" )  
and "Has Most Recent Bladder Cancer Tumor Staging is Ta HG, Tis, T1"  
and "Has Qualifying Encounter"

#### Mixed Histology Urothelial Cell Carcinoma

["Diagnosis": "Mixed histology urothelial cell carcinoma for Urology Care"] MixedHistology  
with "Most Recent Bladder Cancer Staging Procedure" Staging  
such that MixedHistology.prevalencePeriod starts on or before start of Global."NormalizeInterval" ( Staging.relevantDatetime, Staging.relevantPeriod )

#### Most Recent Bladder Cancer Staging Procedure

Last(["Procedure, Performed": "Cancer staging (tumor staging)"] Staging  
with "Bladder Cancer Diagnoses" BladderCancer  
such that Global."NormalizeInterval"(Staging.relevantDatetime, Staging.relevantPeriod)starts on or before day of start BladderCancer.prevalencePeriod  
and Global."NormalizeInterval"(Staging.relevantDatetime, Staging.relevantPeriod)overlaps day of BladderCancer.prevalencePeriod  
sort by start of Global."NormalizeInterval"(relevantDatetime, relevantPeriod)  
)

#### Numerator

"First BCG Administered" is not null

#### Radiation Done

["Procedure, Performed": "Combined radiotherapy (procedure)"] Radiation  
with "Most Recent Bladder Cancer Staging Procedure" Staging  
such that Global."NormalizeInterval" ( Radiation.relevantDatetime, Radiation.relevantPeriod ) starts 6 months or less before Staging.relevantPeriod

#### 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 "Cancer staging (tumor staging)" ("SNOMEDCT Code (258232002)")
- code "Carcinoma in situ of bladder" ("ICD10CM Code (D09.0)")
- code "Combined radiotherapy (procedure)" ("SNOMEDCT Code (169331000)")
- code "T1: Urinary tract tumor invades subepithelial connective tissue (finding)" ("SNOMEDCT Code (369935001)")
- code "Ta: Noninvasive papillary carcinoma (urinary tract) (finding)" ("SNOMEDCT Code (369949005)")
- code "Tis: Carcinoma in situ (flat tumor of urinary bladder) (finding)" ("SNOMEDCT Code (369934002)")
- valueset "Active Tuberculosis for Urology Care" (2.16.840.1.113762.1.4.1151.56)
- valueset "BCG Bacillus Calmette Guerin for Urology Care" (2.16.840.1.113762.1.4.1151.52)
- valueset "Bladder Cancer for Urology Care" (2.16.840.1.113762.1.4.1151.45)
- valueset "Chemotherapy for Advanced Cancer" (2.16.840.1.113883.3.7643.3.1048)
- valueset "Cystectomy for Urology Care" (2.16.840.1.113762.1.4.1151.55)
- valueset "Ethnicity" (2.16.840.1.114222.4.11.837)
- valueset "HIV" (2.16.840.1.113883.3.464.1003.120.12.1003)
- valueset "Immunocompromised Conditions" (2.16.840.1.113883.3.666.5.1940)
- valueset "Immunosuppressive Drugs for Urology Care" (2.16.840.1.113762.1.4.1151.32)
- valueset "Mixed histology urothelial cell carcinoma for Urology Care" (2.16.840.1.113762.1.4.1151.39)
- 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 "Payer" (2.16.840.1.114222.4.11.3591)
- valueset "Race" (2.16.840.1.114222.4.11.836)
- valueset "Unavailability of Bacillus Calmette Guerin for urology care" (2.16.840.1.113762.1.4.1151.44)

### Data Criteria (QDM Data Elements)

- "Diagnosis: Active Tuberculosis for Urology Care" using "Active Tuberculosis for Urology Care (2.16.840.1.113762.1.4.1151.56)"
- "Diagnosis: Bladder Cancer for Urology Care" using "Bladder Cancer for Urology Care (2.16.840.1.113762.1.4.1151.45)"
- "Diagnosis: HIV" using "HIV (2.16.840.1.113883.3.464.1003.120.12.1003)"
- "Diagnosis: Immunocompromised Conditions" using "Immunocompromised Conditions (2.16.840.1.113883.3.666.5.1940)"
- "Diagnosis: Mixed histology urothelial cell carcinoma for Urology Care" using "Mixed histology urothelial cell carcinoma for Urology Care (2.16.840.1.113762.1.4.1151.39)"
- "Encounter, Performed: Office Visit" using "Office Visit (2.16.840.1.113883.3.464.1003.101.12.1001)"
- "Medication, Active: Chemotherapy for Advanced Cancer" using "Chemotherapy for Advanced Cancer (2.16.840.1.113883.3.7643.3.1048)"
- "Medication, Active: Immunosuppressive Drugs for Urology Care" using "Immunosuppressive Drugs for Urology Care (2.16.840.1.113762.1.4.1151.32)"
- "Medication, Administered: BCG Bacillus Calmette Guerin for Urology Care" using "BCG Bacillus Calmette Guerin for Urology Care (2.16.840.1.113762.1.4.1151.52)"
- "Medication, Not Administered: BCG Bacillus Calmette Guerin for Urology Care" using "BCG Bacillus Calmette Guerin for Urology Care (2.16.840.1.113762.1.4.1151.52)"
- "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: ONC Administrative Sex" using "ONC Administrative Sex (2.16.840.1.113762.1.4.1)"
- "Procedure, Performed: Cancer staging (tumor staging)" using "Cancer staging (tumor staging) (SNOMEDCT Code 258232002)"
- "Procedure, Performed: Combined radiotherapy (procedure)" using "Combined radiotherapy (procedure) (SNOMEDCT Code 169331000)"
- "Procedure, Performed: Cystectomy for Urology Care" using "Cystectomy for Urology Care (2.16.840.1.113762.1.4.1151.55)"

### 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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