

| eCQM Title                        | 10034  | eCQM Version Number | 14.0.000                            |
|-----------------------------------|--|---------------------|-------------------------------------|
| CBE Number                        | 00838  | GUID                | 8439671.2932-464c-88ca-ea5faacc899a |
| Measurement Period                | January 1, 2026 through December 31, 2026  |                     |                                     |
| Measure Steward                   | American Heart Association   |                     |                                     |
| Measure Developer                 | American Medical Association (AMA)   |                     |                                     |
| Measure Developer                 | American Heart Association   |                     |                                     |
| Endorsed By                       | CMS Consensus Based Entity   |                     |                                     |
| Description                       | Percentage of patients aged 18 years and older with a diagnosis of heart failure (HF) with a current or prior left ventricular ejection fraction (LVEF) <= 40% who were prescribed or already taking beta-blocker therapy during the measurement period  |                     |                                     |
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| Measure Scoring                   | Proportion   |                     |                                     |
| Measure Type                      | Process  |                     |                                     |
| Stratification                    | None   |                     |                                     |
| Risk Adjustment                   | None   |                     |                                     |
| Rate Aggregation                  | None   |                     |                                     |
| Rationale                         | Beta blockers improve survival and reduce hospitalization for patients with stable heart failure with reduced ejection fraction (HFrEF). Treatment should be initiated as soon as a patient is diagnosed with reduced LVEF and does not have prohibitively low systemic blood pressure, fluid overload, or recent treatment with an intravenous positive inotropic agent. Beta blockers have also been shown to lessen the symptoms of heart failure, improve the clinical status of patients, and reduce future clinical deterioration. Despite these benefits, use of beta blockers in eligible patients remains suboptimal.   |                     |                                     |
| Clinical Recommendation Statement | In patients with HFrEF, with current or previous symptoms, use of 1 of the 3 beta blockers proven to reduce mortality (e.g., bisoprolol, carvedilol, sustained-release metoprolol succinate) is recommended to reduce mortality and hospitalizations (Class I, Level of Evidence A) (Heidenreich, 2022).<br>Drugs Commonly Used for Stage C HFrEF (abbreviated to align with focus of measure to include only Beta-Blocker therapy)<br>Drug Initial Daily Dose(s) Target Dose(s) Mean Doses Achieved in Clinical Trials<br>Beta Blockers<br>Bisoprolol 1.25 mg once 10 mg once 8.6 mg/d<br>Carvedilol 3.25 mg twice 25-50 mg twice 37 mg/d<br>Carvedilol CR 10 mg once 80 mg once N/A<br>Metoprolol succinate extended release (metoprolol CR/XL) 12.5 to 25 mg once 200 mg once 159 mg/d  |                     |                                     |
| Improvement Notation              | Higher score indicates better quality<br>Reference Type: CITATION  |                     |                                     |
| Reference                         | Reference Text: Heidenreich, P.A., Bozkurt, B, Aguilar, D., ... Allen, L. A. (2022). 2022 AHA/ACC/HFSA Guideline for the Management of Heart Failure: A Report of the American College of Cardiology/American Heart Association Joint Committee on Clinical Practice Guidelines. Circulation, 145(18), e885-e1032. doi: 10.1161/01.cir.0000000000.000193   |                     |                                     |
| Definition                        | LVEF <= 40% corresponds to qualitative documentation of moderate dysfunction or severe dysfunction (LVSD). The LVSD may be determined by quantitative or qualitative assessment, which may be current or historical. Examples of a quantitative or qualitative assessment may include an echocardiogram:<br>1) that provides a numerical value of LVSD or 2) that uses descriptive terms such as moderately or severely depressed left ventricular systolic function. Any current or prior ejection fraction study documenting LVSD can be used to identify patients.  |                     |                                     |
|                                   | This eCQM is to be reported as patient-based. To satisfy this measure, it must be reported for all heart failure patients at least once during the measurement period.   |                     |                                     |
|                                   | A range value should satisfy the logic requirement for "Ejection Fraction" as long as the ranged observation value clearly meets the less than or equal to 40% threshold noted in the denominator logic. A range that is greater than 40% would not meet the measure requirement.  |                     |                                     |
| Guidance                          | In order for the Ejection Fraction result pathway to be recognized as below 40%, the result must be reported as a number with unit of %. A text string of "below 40%" or "ejection fraction between 35 and 40%" will not be recognized through electronic data capture. Although, this criteria can also be met using the Diagnosis pathway if specified as "Moderate or Severe."<br>Beta-blocker therapy.<br>For patients with prior LVEF <= 40%, beta-blocker therapy should include bisoprolol, carvedilol, or sustained release metoprolol succinate.<br>The requirement of two or more visits is to establish that the eligible clinician has an existing relationship with the patient.<br>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                | All patients aged 18 years and older with two qualifying encounters during the measurement period and a diagnosis of heart failure on or before at least one qualifying encounter  |                     |                                     |
| Denominator                       | Equals Initial Population with a current or prior LVEF <= 40%  |                     |                                     |
| Denominator Exclusions            | Patients with a history of heart transplant or with a Left Ventricular Assist Device (LVAD) prior to the end of the outpatient encounter with Moderate or Severe LVSD  |                     |                                     |
| Numerator                         | Patients who were prescribed or already taking beta-blocker therapy during the measurement period  |                     |                                     |
| Numerator Exclusions              | None   |                     |                                     |
| Denominator Exceptions            | Documentation of medical reason(s) for not prescribing beta-blocker therapy (e.g., arrhythmia, asthma, bradycardia, hypotension, patients with atrioventricular block without cardiac pacer, observation of consecutive heart rates <50, allergy, intolerance, other medical reasons).<br>Documentation of patient reason(s) for not prescribing beta-blocker therapy (e.g., patient declined, other patient reasons).   |                     |                                     |
| Supplemental Data Elements        | For every patient evaluated by this measure also identify payer, race, ethnicity and sex   |                     |                                     |

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| Population Criteria           |   |
|-------------------------------|---|
| <b>Initial Population</b>     | HeartFailure."Is Adults With Two Qualifying Outpatient Encounters and One Heart Failure Outpatient Encounter During the Measurement Period"   |
| <b>Denominator</b>            | "Initial Population"<br>and exists HeartFailure."Heart Failure Outpatient Encounter with History of Moderate or Severe LVSD"  |
| <b>Denominator Exclusions</b> | HeartFailure."Has Heart Transplant"<br>or HeartFailure."Has Heart Transplant Complications"<br>or HeartFailure."Has Left Ventricular Assist Device"<br>or HeartFailure."Has Left Ventricular Assist Device Complications"   |
| <b>Numerator</b>              | "Has Beta Blocker Therapy for LVSD Ordered"<br>or "Is Currently Taking Beta Blocker Therapy for LVSD"   |
| <b>Numerator Exclusions</b>   | None  |
| <b>Denominator Exceptions</b> | "Has Consecutive Heart Rates Less than 50"<br>or "Has Medical or Patient Reason for Not Ordering Beta Blocker for LVSD"<br>or "Has Arrhythmia Diagnosis"<br>or "Has Hypertension Diagnosis"<br>or "Has Asthma Diagnosis"<br>or "Has Diagnosis of Allergy or Intolerance to Beta Blocker Therapy"<br>or "Has Bradycardia Diagnosis"<br>or "Has Allergy or Intolerance to Beta Blocker Therapy Ingredient"<br>or ( ( exists ["Diagnosis": "Atrioventricular Block"] AtrioventricularBlock with HeartFailure."Heart Failure Outpatient Encounter with History of Moderate or Severe LVSD" ModerateOrSevereLVSDHFOutpatientEncounter such that AtrioventricularBlock.prevalencePeriod overlaps day of ModerateOrSevereLVSDHFOutpatientEncounter.relevantPeriod ) and not "Has Diagnosis of Cardiac Pacer in Situ" and not "Has Cardiac Pacer Device Implanted") |
| <b>Stratification</b>         | None  |

| Definitions  |  |
|--|--|
| <b>Denominator</b>   | "Initial Population"<br>and exists HeartFailure."Heart Failure Outpatient Encounter with History of Moderate or Severe LVSD"   |
| <b>Denominator Exceptions</b>  | "Has Consecutive Heart Rates Less than 50"<br>or "Has Medical or Patient Reason for Not Ordering Beta Blocker for LVSD"<br>or "Has Arrhythmia Diagnosis"<br>or "Has Hypertension Diagnosis"<br>or "Has Asthma Diagnosis"<br>or "Has Diagnosis of Allergy or Intolerance to Beta Blocker Therapy"<br>or "Has Bradycardia Diagnosis"<br>or "Has Allergy or Intolerance to Beta Blocker Therapy Ingredient"<br>or ( ( exists ["Diagnosis": "Atrioventricular Block"] AtrioventricularBlock with HeartFailure."Heart Failure Outpatient Encounter with History of Moderate or Severe LVSD" ModerateOrSevereLVSDHFOutpatientEncounter such that AtrioventricularBlock.prevalencePeriod overlaps day of ModerateOrSevereLVSDHFOutpatientEncounter.relevantPeriod ) and not "Has Diagnosis of Cardiac Pacer in Situ" and not "Has Cardiac Pacer Device Implanted")  |
| <b>Denominator Exclusions</b>  | HeartFailure."Has Heart Transplant"<br>or HeartFailure."Has Heart Transplant Complications"<br>or HeartFailure."Has Left Ventricular Assist Device"<br>or HeartFailure."Has Left Ventricular Assist Device Complications"  |
| <b>Has Allergy or Intolerance to Beta Blocker Therapy Ingredient</b>   | exists ( ["Allergy/Intolerance": "Beta Blocker Therapy Ingredient"] union ( ["Allergy/Intolerance": "Substance with beta adrenergic receptor antagonist mechanism of action (substance)"] ) BetaBlockerAllergy/Intolerance with HeartFailure."Heart Failure Outpatient Encounter with History of Moderate or Severe LVSD" ModerateOrSevereLVSDHFOutpatientEncounter such that BetaBlockerAllergy/Intolerance.prevalencePeriod overlaps after day of ModerateOrSevereLVSDHFOutpatientEncounter.relevantPeriod   |
| <b>Has Arrhythmia Diagnosis</b>  | exists ( ["Diagnosis": "Arrhythmia"] ArrhythmiaDiagnosis with HeartFailure."Heart Failure Outpatient Encounter with History of Moderate or Severe LVSD" ModerateOrSevereLVSDHFOutpatientEncounter such that ArrhythmiaDiagnosis.prevalencePeriod overlaps day of ModerateOrSevereLVSDHFOutpatientEncounter.relevantPeriod  |
| <b>Has Asthma Diagnosis</b>  | exists ( ["Diagnosis": "Asthma"] AsthmaDiagnosis with HeartFailure."Heart Failure Outpatient Encounter with History of Moderate or Severe LVSD" ModerateOrSevereLVSDHFOutpatientEncounter such that AsthmaDiagnosis.prevalencePeriod overlaps day of ModerateOrSevereLVSDHFOutpatientEncounter.relevantPeriod  |
| <b>Has Beta Blocker Therapy for LVSD Ordered</b>   | exists ( ["Medication, Order": "Beta Blocker Therapy for LVSD"] BetaBlockerOrdered with HeartFailure."Heart Failure Outpatient Encounter with History of Moderate or Severe LVSD" ModerateOrSevereLVSDHFOutpatientEncounter such that BetaBlockerOrdered.authorDateTime during day of ModerateOrSevereLVSDHFOutpatientEncounter.relevantPeriod   |
| <b>Has Bradycardia Diagnosis</b>   | exists ( ["Diagnosis": "Bradycardia"] BradycardiaDiagnosis with HeartFailure."Heart Failure Outpatient Encounter with History of Moderate or Severe LVSD" ModerateOrSevereLVSDHFOutpatientEncounter such that BradycardiaDiagnosis.prevalencePeriod overlaps day of ModerateOrSevereLVSDHFOutpatientEncounter.relevantPeriod   |
| <b>Has Cardiac Pacer Device Implanted</b>  | exists ( ["Procedure, Performed": "Cardiac Pacer"] ImplantedCardiacPacer with HeartFailure."Heart Failure Outpatient Encounter with History of Moderate or Severe LVSD" ModerateOrSevereLVSDHFOutpatientEncounter such that ( Global."NormalZInterval" ( ImplantedCardiacPacer.relevantDateime, ImplantedCardiacPacer.relevantPeriod ) ) starts before end of ModerateOrSevereLVSDHFOutpatientEncounter.relevantPeriod   |
| <b>Has Consecutive Heart Rates Less than 50</b>  | exists from ( ["Physical Exam, Performed": "Heart Rate"] HeartRateExam with HeartFailure."Heart Failure Outpatient Encounter with History of Moderate or Severe LVSD" ModerateOrSevereLVSDHFOutpatientEncounter let PriorHeartRateExam_Last["Physical Exam, Performed": "Heart Rate"] MostRecentPriorHeartRateExam where ( Global."NormalZInterval" ( MostRecentPriorHeartRateExam.relevantDateime, MostRecentPriorHeartRateExam.relevantPeriod ) ) during ModerateOrSevereLVSDHFOutpatientEncounter.relevantPeriod and ( Global."NormalZInterval" ( MostRecentPriorHeartRateExam.relevantDateime, MostRecentPriorHeartRateExam.relevantPeriod ) ) before Global."NormalZInterval" ( HeartRateExam.relevantDateime, HeartRateExam.relevantPeriod ) ) and where ( Global."NormalZInterval" ( HeartRateExam.relevantDateime, HeartRateExam.relevantPeriod ) ) during ModerateOrSevereLVSDHFOutpatientEncounter.relevantPeriod and HeartRateExam.result < 50 (beats/min) and PriorHeartRateExam.result < 50 (beats/min) |
| <b>Has Diagnosis of Allergy or Intolerance to Beta Blocker Therapy</b>   | exists ( ["Diagnosis": "Allergy to Beta Blocker Therapy"] union ( ["Diagnosis": "Intolerance to Beta Blocker Therapy"] ) BetaBlockerAllergyOrIntoleranceDiagnosis with HeartFailure."Heart Failure Outpatient Encounter with History of Moderate or Severe LVSD" ModerateOrSevereLVSDHFOutpatientEncounter such that BetaBlockerAllergyOrIntoleranceDiagnosis.prevalencePeriod overlaps after day of ModerateOrSevereLVSDHFOutpatientEncounter.relevantPeriod  |
| <b>Has Diagnosis of Cardiac Pacer in Situ</b>  | exists ( ["Diagnosis": "Cardiac Pacer in Situ"] CardiacPacerDiagnosis with HeartFailure."Heart Failure Outpatient Encounter with History of Moderate or Severe LVSD" ModerateOrSevereLVSDHFOutpatientEncounter such that CardiacPacerDiagnosis.prevalencePeriod overlaps after day of ModerateOrSevereLVSDHFOutpatientEncounter.relevantPeriod   |
| <b>Has Hypertension Diagnosis</b>  | exists ( ["Diagnosis": "Hypertension"] HypertensionDiagnosis with HeartFailure."Heart Failure Outpatient Encounter with History of Moderate or Severe LVSD" ModerateOrSevereLVSDHFOutpatientEncounter such that HypertensionDiagnosis.prevalencePeriod overlaps day of ModerateOrSevereLVSDHFOutpatientEncounter.relevantPeriod  |
| <b>Has Medical or Patient Reason for Not Ordering Beta Blocker for LVSD</b>  | exists ( ["Medication, Not Ordered": "Beta Blocker Therapy for LVSD"] NoBetaBlockerOrdered with HeartFailure."Heart Failure Outpatient Encounter with History of Moderate or Severe LVSD" ModerateOrSevereLVSDHFOutpatientEncounter such that NoBetaBlockerOrdered.authorDateime during day of ModerateOrSevereLVSDHFOutpatientEncounter.relevantPeriod where ( ( NoBetaBlockerOrdered.negativeRationale in "Medical Reason" ) or NoBetaBlockerOrdered.negativeRationale in "Patient Reason" )   |
| <b>HeartFailure.Has Heart Transplant</b>   | exists ( ["Procedure, Performed": "Heart Transplant"] HeartTransplantSurgery with "Heart Failure Outpatient Encounter with History of Moderate or Severe LVSD" ModerateOrSevereLVSDHFOutpatientEncounter such that ( Global."NormalZInterval" ( HeartTransplantSurgery.relevantDateime, HeartTransplantSurgery.relevantPeriod ) ) starts before end of ModerateOrSevereLVSDHFOutpatientEncounter.relevantPeriod  |
| <b>HeartFailure.Has Heart Transplant Complications</b>   | exists ( ["Diagnosis": "Heart Transplant Complications"] ComplicationsFromHeartTransplant with "Heart Failure Outpatient Encounter with History of Moderate or Severe LVSD" ModerateOrSevereLVSDHFOutpatientEncounter such that ( Global."NormalZInterval" ( ComplicationsFromHeartTransplant.authorDateime, ComplicationsFromHeartTransplant.relevantPeriod ) ) starts before end of ModerateOrSevereLVSDHFOutpatientEncounter.relevantPeriod   |
| <b>HeartFailure.Has Left Ventricular Assist Device</b>   | exists ( ["Procedure, Performed": "Left Ventricular Assist Device Placement"] LVADOutpatient with "Heart Failure Outpatient Encounter with History of Moderate or Severe LVSD" ModerateOrSevereLVSDHFOutpatientEncounter such that ( Global."NormalZInterval" ( LVADOutpatient.relevantDateime, LVADOutpatient.relevantPeriod ) ) starts before end of ModerateOrSevereLVSDHFOutpatientEncounter.relevantPeriod  |
| <b>HeartFailure.Has Left Ventricular Assist Device Complications</b>   | exists ( ["Diagnosis": "Left Ventricular Assist Device Complications"] LVADComplications with "Heart Failure Outpatient Encounter with History of Moderate or Severe LVSD" ModerateOrSevereLVSDHFOutpatientEncounter such that ( Global."NormalZInterval" ( LVADComplications.authorDateime, LVADComplications.prevalencePeriod ) ) starts before end of ModerateOrSevereLVSDHFOutpatientEncounter.relevantPeriod  |
| <b>HeartFailure-Heart Failure Outpatient Encounter</b>   | ( ["Encounter, Performed": "Care Services in Long Term Residential Facility"] union ( ["Encounter, Performed": "Home Healthcare Services"] union ( ["Encounter, Performed": "Nursing Facility Visit"] union ( ["Encounter, Performed": "Office Visit"] union ( ["Encounter, Performed": "Outpatient Consultation"] ) ) ) ) QualifyingEncounter with ( ["Diagnosis": "Heart Failure"] HeartFailure such that HeartFailure.prevalencePeriod overlaps QualifyingEncounter.relevantPeriod where QualifyingEncounter.relevantPeriod during of "Measurement Period"  |
| <b>HeartFailure-Heart Failure Outpatient Encounter with History of Moderate or Severe LVSD</b>   | "Heart Failure Outpatient Encounter" HFOutpatientEncounter with "Moderate or Severe LVSD Findings" LVSDFindings such that Coalesce(LVSDFindings.relevantPeriod, Global."NormalZInterval"(LVSDFindings.relevantDateime, LVSDFindings.relevantPeriod)) starts before end of HFOutpatientEncounter.relevantPeriod   |
| <b>HeartFailure.Is Adults With Two Qualifying Outpatient Encounters and One Heart Failure Outpatient Encounter During the Measurement Period</b> | AgentHeartFailureStartFromStartOfMeasurementPeriod >= 18 and exists ( "Qualifying Outpatient Encounter During Measurement Period" InitialEncounter with "Qualifying Outpatient Encounter During Measurement Period" SubsequentEncounter such that SubsequentEncounter.id != InitialEncounter.id ) and exists "Heart Failure Outpatient Encounter"  |
| <b>HeartFailure.Moderate or Severe LVSD Findings</b>   | ( ["Diagnostic Study, Performed": "Ejection Fraction"] EjectionFractionTest where EjectionFractionTest.result <= 40 % ) union ( ["Diagnosis": "Moderate or Severe LVSD"] union ( [ "Diagnosis": "Left ventricular systolic dysfunction (disorder)"] LVSD where LVSD.severity in "Moderate or Severe" )   |
| <b>HeartFailure.Qualifying Outpatient Encounter During Measurement Period</b>  | ( ["Encounter, Performed": "Office Visit"] union ( ["Encounter, Performed": "Outpatient Consultation"] union ( ["Encounter, Performed": "Nursing Facility Visit"] union ( ["Encounter, Performed": "Care Services in Long Term Residential Facility"] union ( ["Encounter, Performed": "Home Healthcare Services"] union ( ["Encounter, Performed": "Nursing Facility Visit"] union ( ["Encounter, Performed": "Patient Provider Interaction"] ) ) ) ) ) ValidEncounter where ValidEncounter.relevantPeriod during of "Measurement Period"   |
| <b>Initial Population</b>  | HeartFailure."Is Adults With Two Qualifying Outpatient Encounters and One Heart Failure Outpatient Encounter During the Measurement Period"  |
| <b>Is Currently Taking Beta Blocker Therapy for LVSD</b>   | exists ( ["Medication, Active": "Beta Blocker Therapy for LVSD"] ActiveBetaBlocker with HeartFailure."Heart Failure Outpatient Encounter with History of Moderate or Severe LVSD" ModerateOrSevereLVSDHFOutpatientEncounter such that ActiveBetaBlocker.relevantPeriod overlaps after day of ModerateOrSevereLVSDHFOutpatientEncounter.relevantPeriod  |
| <b>Numerator</b>   | "Has Beta Blocker Therapy for LVSD Ordered"<br>or "Is Currently Taking Beta Blocker Therapy for LVSD"  |
| <b>SDE Ethnicity</b>   | ["Patient Characteristic Ethnicity": "Ethnicity"]  |
| <b>SDE Payer</b>   | ["Patient Characteristic Payer": "Payer Type"]   |
| <b>SDE Race</b>  | ["Patient Characteristic Race": "Race"]  |
| <b>SDE Sex</b>   | ["Patient Characteristic Sex": "Federal Administrative Sex"]   |

| Functions   |   |
|---|---|
| <b>Global.NormalizeInterval(pointInTime Date, time period Interval&lt;DateTime&gt;)</b> | if pointInTime is not null then Interval(pointInTime, pointInTime) else if period is not null then period else null as Interval<DateTime> |

| Terminology |   |
|-------------|---|
| •           | code "Left ventricular systolic dysfunction (disorder)" ("SNOMEDCT Code (134401001)")                                     |
| •           | code "Intolerance with beta adrenergic receptor antagonist mechanism of action (substance)" ("SNOMEDCT Code (373254001)") |
| •           | valueSet "Allergy to Beta Blocker Therapy" (2.16.840.1.113883.3.526.3.1177)   |
| •           | valueSet "Arrhythmia" (2.16.840.1.113883.3.526.3.360)   |
| •           | valueSet "Asthma" (2.16.840.1.113883.3.526.3.362)   |
| •           | valueSet "Atrioventricular Block" (2.16.840.1.113883.3.526.3.376)   |
| •           | valueSet "Beta Blocker Therapy for LVSD" (2.16.840.1.113883.3.526.3.1184)   |
| •           | valueSet "Beta Blocker Therapy Ingredient" (2.16.840.1.113883.3.526.3.1493)   |
| •           | valueSet "Bradycardia" (2.16.840.1.113883.3.526.3.368)  |
| •           | valueSet "Cardiac Pacer in Situ" (2.16.840.1.113883.3.526.3.369)  |
| •           | valueSet "Care Services in Long Term Residential Facility" (2.16.840.1.113883.3.464.1003.101.12.1014)                     |
| •           | valueSet "Ejection Fraction" (2.16.840.1.113883.3.526.3.1134)   |
| •           | valueSet "Ethnicity" (2.16.840.1.114222.4.11.837)   |
| •           | valueSet "Federal Administrative Sex" (2.16.840.1.113883.3.526.3.1178)  |
| •           | valueSet "Heart Failure" (2.16.840.1.113883.3.526.3.1176)   |
| •           | valueSet "Heart Rate" (2.16.840.1.113883.3.526.3.1179)  |
| •           | valueSet "Heart Transplant" (2.16.840.1.113762.1.4.1178.53)   |
| •           | valueSet "Heart Transplant Complications" (2.16.840.1.113762.1.4.1178.56)   |
| •           | valueSet "Home Healthcare Services" (2.16.840.1.113883.3.464.1003.101.12.1016)  |
| •           | valueSet "Hypertension" (2.16.840.1.113883.3.526.3.370)   |
| •           | valueSet "Intolerance to Beta Blocker Therapy" (2.16.840.1.113883.3.526.3.1177)   |
| •           | valueSet "Left Ventricular Assist Device Complications" (2.16.840.1.113762.1.4.1178.58)                                   |
| •           | valueSet "Left Ventricular Assist Device Placement" (2.16.840.1.113762.1.4.1178.61)                                       |
| •           | valueSet "Medical Reason" (2.16.840.1.113883.3.526.3.1007)  |
| •           | valueSet "Moderate or Severe LVSD" (2.16.840.1.113883.3.526.3.1090)   |
| •           | valueSet "Moderate or Severe LVSD" (2.16.840.1.113883.3.526.3.1090)   |
| •           | valueSet "Nursing Facility Visit" (2.16.840.1.113883.3.464.1003.101.12.1008)  |
| •           | valueSet "Office Visit" (2.16.840.1.113883.3.464.1003.101.12.1012)  |
| •           | valueSet "Outpatient Consultation" (2.16.840.1.113883.3.526.3.1012)   |
| •           | valueSet "Patient Provider Interaction" (2.16.840.1.113883.3.526.3.1012)  |
| •           | valueSet "Patient Reason" (2.16.840.1.114222.4.11.3591)   |
| •           | valueSet "Race" (2.16.840.1.114222.4.11.836)  |

| Data Criteria (QDM Data Elements) |  |
|-----------------------------------|--|
| •                                 | "Allergy/Intolerance: Substance with beta adrenergic receptor antagonist mechanism of action (substance)" (2.16.840.1.113883.3.526.3.1493)                                 |
| •                                 | "SNOMEDCT Code (373254001)"  |
| •                                 | "Diagnosis: Allergy to Beta Blocker Therapy" (2.16.840.1.113883.3.526.3.1177)  |
| •                                 | "Diagnosis: Arrhythmia" using "Arrhythmia" (2.16.840.1.113883.3.526.3.360)   |
| •                                 | "Diagnosis: Asthma" using "Asthma" (2.16.840.1.113883.3.526.3.362)   |
| •                                 | "Diagnosis: Atrioventricular Block" using "Atrioventricular Block" (2.16.840.1.113883.3.526.3.376)   |
| •                                 | "Diagnosis: Bradycardia" using "Bradycardia" (2.16.840.1.113883.3.526.3.368)   |
| •                                 | "Diagnosis: Cardiac Pacer in Situ" using "Cardiac Pacer in Situ" (2.16.840.1.113883.3.526.3.369)   |
| •                                 | "Diagnosis: Heart Failure" using "Heart Failure" (2.16.840.1.113883.3.526.3.1176)  |
| •                                 | "Diagnosis: Heart Transplant Complications" using "Heart Transplant Complications" (2.16.840.1.113762.1.4.1178.56)   |
| •                                 | "Diagnosis: Hypertension" using "Hypertension" (2.16.840.1.113883.3.526.3.370)   |
| •                                 | "Diagnosis: Intolerance to Beta Blocker Therapy" (2.16.840.1.113883.3.526.3.1177)  |
| •                                 | "Diagnosis: Left Ventricular Assist Device Complications" using "Left Ventricular Assist Device Complications" (2.16.840.1.113762.1.4.1178.58)                             |
| •                                 | "Diagnosis: Left Ventricular Assist Device Placement" using "Left Ventricular Assist Device Placement" (2.16.840.1.113762.1.4.1178.61)                                     |
| •                                 | "Encounter, Performed: Care Services in Long Term Residential Facility" using "Care Services in Long Term Residential Facility" (2.16.840.1.113883.3.464.1003.101.12.1014) |
| •                                 | "Encounter, Performed: Home Healthcare Services" using "Home Healthcare Services" (2.16.840.1.113883.3.464.1003.101.12.1016)   |
| •                                 | "Encounter, Performed: Nursing Facility Visit" using "Nursing Facility Visit" (2.16.840.1.113883.3.464.1003.101.12.1008)   |
| •                                 | "Encounter, Performed: Office Visit" using "Office Visit" (2.16.840.1.113883.3.464.1003.101.12.1012)   |
| •                                 | "Encounter, Performed: Outpatient Consultation" using "Outpatient Consultation" (2.16.840.1.113883.3.526.3.1012)   |
| •                                 | "Encounter, Performed: Patient Provider Interaction" using "Patient Provider Interaction" (2.16.840.1.113883.3.526.3.1012)   |
| •                                 | "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: Federal Administrative Sex" using "Federal Administrative Sex" (2.16.840.1.113762.1.4.1021.1211)  |
| •                                 | "Physical Exam, Performed: Heart Rate" using "Heart Rate" (2.16.840.1.113883.3.526.3.1179)   |
| •                                 | "Procedure, Performed: Heart Transplant" using "Heart Transplant" (2.16.840.1.113762.1.4.1178.53)  |
| •                                 | "Procedure, Performed: Heart Transplant" using "Heart Transplant" (2.16.840.1.113762.1.4.1178.53)  |
| •                                 | "Procedure, Performed: Left Ventricular Assist Device Placement" using "Left Ventricular Assist Device Placement" (2.16.840.1.113762.1.4.1178.61)                          |

| Supplemental Data Elements |  |
|----------------------------|--|
| <b>SDE Ethnicity</b>       | ["Patient Characteristic Ethnicity": "Ethnicity"]            |
| <b>SDE Payer</b>           | ["Patient Characteristic Payer": "Payer Type"]               |
| <b>SDE Race</b>            | ["Patient Characteristic Race": "Race"]                      |
| <b>SDE Sex</b>             | ["Patient Characteristic Sex": "Federal Administrative Sex"] |

| Risk Adjustment Variables |  |
|---------------------------|--|
| None                      |  |

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