|  |  |  |  |
| --- | --- | --- | --- |
| **eMeasure Title** | **Discharged on Statin Medication** | | |
| **eMeasure Identifier (Measure Authoring Tool)** | 105 | **eMeasure Version number** | 5.3.000 |
| **NQF Number** | 0439 | **GUID** | 1f503318-bb8d-4b91-af63-223ae0a2328e |
| **Measurement Period** | January 1, 20XX through December 31, 20XX | | |
| **Measure Steward** | The Joint Commission | | |
| **Measure Developer** | The Joint Commission | | |
| **Endorsed By** | National Quality Forum | | |
| **Description** | Ischemic stroke patients who are prescribed statin medication at hospital discharge | | |
| **Copyright** | Measure specifications are in the Public Domain.  LOINC(R) is a registered trademark of the Regenstrief Institute.  This material contains SNOMED Clinical Terms (R) (SNOMED CT[C]) copyright 2004-2015 International Health Terminology Standards Development Organization. All rights reserved. | | |
| **Disclaimer** | These performance measures are not clinical guidelines and do not establish a standard of medical care, and have not been tested for all potential applications. The measures and specifications are provided without warranty. | | |
| **Measure Scoring** | Proportion | | |
| **Measure Type** | Process | | |
| **Measure Item Count** | Encounter, Performed: Non-Elective Inpatient Encounter | | |
| **Stratification** | None | | |
| **Risk Adjustment** | None | | |
| **Rate Aggregation** | None | | |
| **Rationale** | There is an extensive and consistent body of evidence supporting the use of statins for secondary prevention in patients with clinically evident atherosclerotic cardiovascular disease (ASCVD), which includes individuals with ischemic stroke due to large artery atherosclerosis, individuals with ischemic stroke due to intrinsic small vessel disease, and individuals with ischemic stroke not directly due to atherosclerosis but with clinically evident atherosclerotic disease in an uninvolved cerebral or noncerebral bed. Both women and men with clinical ASCVD are at increased risk for recurrent ASCVD and ASCVD death. High-intensity statin therapy should be initiated or continued as first-line therapy in women and men less than or equal to 75 years of age who have clinical ASCVD, unless contraindicated. In patients with clinical ASCVD and a contraindication to high-intensity statin therapy, moderate-intensity therapy should be considered as an alternative if it can be tolerated. In individuals greater than 75 years of age, the potential for ASCVD risk reduction benefits, adverse effects, drug-drug interactions, and patient preferences should be considered, and statin therapy individualized based on these considerations (Stone, 2013). | | |
| **Clinical Recommendation Statement** | For patients with stroke of atherosclerotic origin, intensive lipid lowering therapy with statins should be initiated | | |
| **Improvement Notation** | Improvement noted as an increase in rate | | |
| **Reference** | Stone NJ, Robinson J, Lichtenstein AH, Noel Bairey Merz C, Blum CB, Eckel RH, Goldberg AC, Gordon D, Levy D, Lloyd-Jones DM, McBride P, Schwartz JS, Shero Jr, ST, Smith SC, Watson K, Wilson PWF. "Guideline on the Treatment of Blood Cholesterol to Reduce Atherosclerotic Cardiovascular Disease in Adults: A Report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines." [In eng]. Circulation 11, (Nov 2013): 1-84. | | |
| **Reference** | Amarenco, P., J. Bogousslavsky, A. Callahan, 3rd, L. B. Goldstein, M. Hennerici, A. E. Rudolph, H. Sillesen, et al. "High-Dose Atorvastatin after Stroke or Transient Ischemic Attack." [In eng]. N Engl J Med 355, no. 6 (Aug 10 2006): 549-59 | | |
| **Reference** | Feher, A., G. Pusch, K. Koltai, A. Tibold, B. Gasztonyi, L. Szapary, and G. Feher. "Statintherapy in the Primary and the Secondary Prevention of Ischaemic Cerebrovascular Diseases." [In eng]. Int J Cardiol 148, no. 2 (Apr 14 2011): 131-8. | | |
| **Reference** | Kernan, W.N., B. Ovbiagele, H. R. Black, D. M. Bravata, M. I. Chimowitz, M. D. Ezekowitz, M. C. Fang, M. Fisher, K. L. Furie, D. V. Heck, S. C. Johnston, S. E. Kasner, S. J. Kittner, P. H. Mitchell, M. W. Rich, D. Richardson, L. H. Schwamm, J. A. Wilson. "Guidelines for the Prevention of Stroke in Patients with Stroke and Transient Ischemic Attack: A Guideline for Healthcare Professionals from the American Heart Association/American Stroke Association." [in eng.] Stroke 45, no. 7 (May 2014): 2160-223 | | |
| **Reference** | National Cholesterol Education Program Expert Panel on Detection, Evaluation, and Adults Treatment of High Blood Cholesterol in Adults."Third Report of the National Cholesterol Education Program (Ncep) Expert Panel on Detection, Evaluation, and Treatment of High Blood Cholesterol in Adults (Adult Treatment Panel Iii) Final Report." [In eng]. Circulation 106, no. 25 (Dec 17 2002): 3143-421. | | |
| **Reference** | Squizzato, A., E. Romualdi, F. Dentali, and W. Ageno. "Statins for Acute Ischemic Stroke." [In eng]. Cochrane Database Syst Rev, no. 8 (2011): CD007551. | | |
| **Definition** | None | | |
| **Guidance** | The "Non-elective Inpatient Encounter" value set intends to capture all non-scheduled hospitalizations. This value set is a subset of the "Inpatient encounter" value set, excluding concepts that specifically refer to elective hospital admissions. Non-elective admissions include emergency, urgent and unplanned admissions. | | |
| **Transmission Format** | TBD | | |
| **Initial Population** | Patients age 18 and older discharged from inpatient care (non-elective admissions) with a principal diagnosis of ischemic or hemorrhagic stroke and a length of stay less than or equal to 120 days | | |
| **Denominator** | Patients with a principal diagnosis of ischemic stroke | | |
| **Denominator Exclusions** | \*Patients admitted for elective carotid intervention. This exclusion is implicitly modeled by only including non-elective hospitalizations.  \*Patients with comfort measures documented  \*Patients discharged to another hospital  \*Patients who left against medical advice  \*Patients who expired  \*Patients discharged to home for hospice care  \*Patients discharged to a health care facility for hospice care  \*Patients with an LDL-c of less than 70 mg/dL <30 days prior to arrival or any time during the hospital stay | | |
| **Numerator** | Patients prescribed statin medication at hospital discharge | | |
| **Numerator Exclusions** | Not Applicable | | |
| **Denominator Exceptions** | Patients with a reason for not prescribing statin medication at discharge | | |
| **Supplemental Data Elements** | For every patient evaluated by this measure also identify payer, race, ethnicity and sex | | |

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* [Data Criteria (QDM Data Elements)](file:///C:/Users/SFisher/Downloads/CMS105v5.html#d1e647)
* [Supplemental Data Elements](file:///C:/Users/SFisher/Downloads/CMS105v5.html#d1e767)
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**[Population Criteria](file:///C:\\Users\\SFisher\\Downloads\\CMS105v5.html" \l "toc)**

* **Initial Population =**
  + AND: Age>= 18 year(s) at: Occurrence A of $EncounterInpatientNonElective
  + AND:
    - OR: Intersection of:
      * Occurrence A of $EncounterInpatientNonElective
      * "Encounter, Performed: Non-Elective Inpatient Encounter (principal diagnosis: Ischemic Stroke)"
    - OR: Intersection of:
      * Occurrence A of $EncounterInpatientNonElective
      * "Encounter, Performed: Non-Elective Inpatient Encounter (principal diagnosis: Hemorrhagic Stroke)"
* **Denominator =**
  + AND: Initial Population
  + AND: Intersection of:
    - Occurrence A of $EncounterInpatientNonElective
    - "Encounter, Performed: Non-Elective Inpatient Encounter (principal diagnosis: Ischemic Stroke)"
* **Denominator Exclusions =**
  + OR: "Laboratory Test, Performed: LDL-c" satisfies all:
    - (result < 70 mg/dL)
    - satisfies any:
      * <= 30 day(s) ends before start of Occurrence A of $EncounterInpatientNonElective
      * starts during Occurrence A of $EncounterInpatientNonElective
  + OR: Intersection of:
    - Occurrence A of $EncounterInpatientNonElective
    - "Encounter, Performed: Non-Elective Inpatient Encounter" satisfies any:
      * (discharge status: Discharge To Acute Care Facility)
      * (discharge status: Left Against Medical Advice)
      * (discharge status: Patient Expired)
      * (discharge status: Discharged to Home for Hospice Care)
      * (discharge status: Discharged to Health Care Facility for Hospice Care)
  + OR: $InterventionComfortMeasures starts during ("Encounter, Performed: Emergency Department Visit" <= 1 hour(s) ends before or concurrent with start of Occurrence A of $EncounterInpatientNonElective )
  + OR: $InterventionComfortMeasures starts during Occurrence A of $EncounterInpatientNonElective
* **Numerator =**
  + AND: "Medication, Discharge: Statin Grouper" starts during Occurrence A of $EncounterInpatientNonElective
* **Numerator Exclusions =**
  + None
* **Denominator Exceptions =**
  + OR: "Medication, Allergy: Statin Allergen" starts before or concurrent with end of Occurrence A of $EncounterInpatientNonElective
  + OR: Union of:
    - "Medication, Discharge not done: Patient Refusal" for "Statin ingredient specific"
    - "Medication, Discharge not done: Medical Reason" for "Statin ingredient specific"
    - starts during Occurrence A of $EncounterInpatientNonElective
* **Stratification =**
  + None

**[Data Criteria (QDM Variables)](file:///C:\\Users\\SFisher\\Downloads\\CMS105v5.html" \l "toc)**

* **$EncounterInpatientNonElective =** 
  + "Encounter, Performed: Non-Elective Inpatient Encounter" satisfies all:
    - (length of stay <= 120 day(s))
    - ends during "Measurement Period"
* **$InterventionComfortMeasures =** 
  + Union of:
    - "Intervention, Order: Comfort Measures"
    - "Intervention, Performed: Comfort Measures"

**[Data Criteria (QDM Data Elements)](file:///C:\\Users\\SFisher\\Downloads\\CMS105v5.html" \l "toc)**

* "Encounter, Performed: Emergency Department Visit" using "Emergency Department Visit SNOMEDCT Value Set (2.16.840.1.113883.3.117.1.7.1.292)"
* "Encounter, Performed: Non-Elective Inpatient Encounter" using "Non-Elective Inpatient Encounter SNOMEDCT Value Set (2.16.840.1.113883.3.117.1.7.1.424)"
* "Intervention, Order: Comfort Measures" using "Comfort Measures SNOMEDCT Value Set (1.3.6.1.4.1.33895.1.3.0.45)"
* "Intervention, Performed: Comfort Measures" using "Comfort Measures SNOMEDCT Value Set (1.3.6.1.4.1.33895.1.3.0.45)"
* "Laboratory Test, Performed: LDL-c" using "LDL-c LOINC Value Set (2.16.840.1.113883.3.117.1.7.1.215)"
* "Medication, Allergy: Statin Allergen" using "Statin Allergen RXNORM Value Set (2.16.840.1.113883.3.117.1.7.1.423)"
* "Medication, Discharge: Statin Grouper" using "Statin Grouper Grouping Value Set (2.16.840.1.113762.1.4.1110.19)"
* "Medication, Discharge: Statin ingredient specific" using "Statin ingredient specific RXNORM Value Set (2.16.840.1.113762.1.4.1021.7)"
* "Medication, Discharge not done: Patient Refusal" using "Patient Refusal SNOMEDCT Value Set (2.16.840.1.113883.3.117.1.7.1.93)"
* "Medication, Discharge not done: Medical Reason" using "Medical Reason SNOMEDCT Value Set (2.16.840.1.113883.3.117.1.7.1.473)"
* Attribute: "Discharge status: Patient Expired" using "Patient Expired SNOMEDCT Value Set (2.16.840.1.113883.3.117.1.7.1.309)"
* Attribute: "Discharge status: Left Against Medical Advice" using "Left Against Medical Advice SNOMEDCT Value Set (2.16.840.1.113883.3.117.1.7.1.308)"
* Attribute: "Discharge status: Discharged to Health Care Facility for Hospice Care" using "Discharged to Health Care Facility for Hospice Care SNOMEDCT Value Set (2.16.840.1.113883.3.117.1.7.1.207)"
* Attribute: "Principal diagnosis: Ischemic Stroke" using "Ischemic Stroke Grouping Value Set (2.16.840.1.113883.3.117.1.7.1.247)"
* Attribute: "Discharge status: Discharge To Acute Care Facility" using "Discharge To Acute Care Facility SNOMEDCT Value Set (2.16.840.1.113883.3.117.1.7.1.87)"
* Attribute: "Discharge status: Discharged to Home for Hospice Care" using "Discharged to Home for Hospice Care SNOMEDCT Value Set (2.16.840.1.113883.3.117.1.7.1.209)"
* Attribute: "Principal diagnosis: Hemorrhagic Stroke" using "Hemorrhagic Stroke Grouping Value Set (2.16.840.1.113883.3.117.1.7.1.212)"

**[Supplemental Data Elements](file:///C:\\Users\\SFisher\\Downloads\\CMS105v5.html" \l "toc)**

* "Patient Characteristic Ethnicity: Ethnicity" using "Ethnicity CDCREC Value Set (2.16.840.1.114222.4.11.837)"
* "Patient Characteristic Payer: Payer" using "Payer SOP Value Set (2.16.840.1.114222.4.11.3591)"
* "Patient Characteristic Race: Race" using "Race CDCREC Value Set (2.16.840.1.114222.4.11.836)"
* "Patient Characteristic Sex: ONC Administrative Sex" using "ONC Administrative Sex AdministrativeGender Value Set (2.16.840.1.113762.1.4.1)"

**[Risk Adjustment Variables](file:///C:\\Users\\SFisher\\Downloads\\CMS105v5.html" \l "toc)**

* None

|  |  |
| --- | --- |
| **Measure Set** | eMeasure Stroke (eSTK) |

CQL Representation

library CMS104 version '5.2.000'

using QDM version '5.0'

valueset "Emergency Department Visit": 'urn:oid:2.16.840.1.113883.3.117.1.7.1.292'

valueset "Non-Elective Inpatient Encounter": 'urn:oid:2.16.840.1.113883.3.117.1.7.1.424'

valueset "Comfort Measures": 'urn:oid:1.3.6.1.4.1.33895.1.3.0.45'

valueset "LDL-c": 'urn:oid:2.16.840.1.113883.3.117.1.7.1.215'

valueset "Statin Allergen": 'urn:oid:2.16.840.1.113883.3.117.1.7.1.423'

valueset "Statin Grouper": 'urn:oid:2.16.840.1.113762.1.4.1110.19'

valueset "Statin ingredient specific": 'urn:oid:2.16.840.1.113762.1.4.1021.7'

valueset "Medical Reason": 'urn:oid:2.16.840.1.113883.3.117.1.7.1.473'

valueset "Patient Refusal": 'urn:oid:2.16.840.1.113883.3.117.1.7.1.93'

valueset "Patient Expired": 'urn:oid:2.16.840.1.113883.3.117.1.7.1.309'

valueset "Left Against Medical Advice": 'urn:oid:2.16.840.1.113883.3.117.1.7.1.308'

valueset "Discharged to Health Care Facility for Hospice Care": 'urn:oid:2.16.840.1.113883.3.117.1.7.1.207'

valueset "Ischemic Stroke": 'urn:oid:2.16.840.1.113883.3.117.1.7.1.247'

valueset "Discharge To Acute Care Facility": 'urn:oid:2.16.840.1.113883.3.117.1.7.1.87'

valueset "Discharged to Home for Hospice Care": 'urn:oid:2.16.840.1.113883.3.117.1.7.1.209'

valueset "Hemorrhagic Stroke": 'urn:oid:2.16.840.1.113883.3.117.1.7.1.212'

valueset "Ethnicity": 'urn:oid:2.16.840.1.114222.4.11.837'

valueset "Payer": 'urn:oid:2.16.840.1.114222.4.11.3591'

valueset "Race": 'urn:oid:2.16.840.1.114222.4.11.836'

valueset "ONC Administrative Sex": 'urn:oid:2.16.840.1.113762.1.4.1'

parameter "Measurement Period" default Interval[@2015-01-01T00:00:00, @2016-01-01T00:00:00)

context Patient

//Region: Initial Population

define "Non-Elective Inpatient Encounter":

["Encounter, Performed": "Non-Elective Inpatient Encounter"] NonElectiveEncounter

where NonElectiveEncounter.lengthOfStay <= 120 days

and NonElectiveEncounter.relevantPeriod ends during "Measurement Period"

define "Encounter with Principal Diagnosis of Hemorrhagic or Ischemic Stroke":

"Non-Elective Inpatient Encounter" NonElectiveEncounter

where NonElectiveEncounter.principalDiagnosis in "Hemorrhagic Stroke"

or NonElectiveEncounter.principalDiagnosis in "Ischemic Stroke"

define "Initial Population":

"Encounter with Principal Diagnosis of Hemorrhagic or Ischemic Stroke" NonElectiveEncounter

where AgeInYearsAt(start of NonElectiveEncounter.relevantPeriod) >= 18

//EndRegion: Initial Population

//Region: Denominator

define "Encounter with Principal Diagnosis of Ischemic Stroke":

"Non-Elective Inpatient Encounter" Encounter

where Encounter.principalDiagnosis in "Ischemic Stroke"

define "Denominator":

"Initial Population"

intersect "Encounter with Principal Diagnosis of Ischemic Stroke"

//EndRegion: Denominator

//Region: Denominator Exclusions

define "LDL-c < 70 mg/dL":

"Encounter with Principal Diagnosis of Ischemic Stroke" Encounter

with ["Laboratory Test, Performed": "LDL-c"] Ldl

such that Ldl.result is < 70 'mg/dL'

and Ldl.resultDatetime 30 days or less before start of Encounter.relevantPeriod

or Ldl.resultDatetime starts during Encounter.relevantPeriod

define "Intervention Comfort Measures":

distinct (

["Intervention, Order": "Comfort Measures"]

union (

["Intervention, Performed": "Comfort Measures"] Intervention

return "Intervention, Order" {

authorDatetime: start of Intervention.relevantPeriod,

reason: Intervention.reason

}

)

)

define "Encounters with Comfort Measures":

"Non-Elective Inpatient Encounter" NonElectiveEncounter

with "Intervention Comfort Measures" ComfortMeasure

such that ComfortMeasure.authorDatetime during NonElectiveEncounter.relevantPeriod

define "Denominator Exclusions":

distinct ((

"Non-Elective Inpatient Encounter" Encounter

where Encounter.dischargeDisposition in "Discharge To Acute Care Facility"

or Encounter.dischargeDisposition in "Left Against Medical Advice"

or Encounter.dischargeDisposition in "Patient Expired"

or Encounter.dischargeDisposition in "Discharged to Home for Hospice Care"

or Encounter.dischargeDisposition in "Discharged to Health Care Facility for Hospice Care"

)

union

"Encounters with Comfort Measures"

or "LDL-c < 70 mg/dL"

)

//EndRegion: Denominator Exclusions

//Region: Numerator

define "Statin at Discharge":

["Medication, Discharge": "Statin Grouper"] Statin

define "Numerator":

"Non-Elective Inpatient Encounter" Encounter

with "Statin at Discharge" Statin such that Statin.authorDatetime starts during Encounter.relevantPeriod

//EndRegion: Numerator

//Region: Numerator Exclusions

//NONE

//EndRegion: Numerator Exclusions

//Region: Denominator Exceptions

define "Statin Allergy":

["Allergy/Intolerance": "Statin Allergen"] Allergy

define "Statin Not Given at Discharge":

["Medication, Not Discharge": "Statin ingredient specific"] StatinDischarge

where StatinDischarge.negationRationale in "Medical Reason"

or StatinDischarge.negationRationale in "Patient Refusal"

define "Denominator Exceptions":

"Non-Elective Inpatient Encounter" Encounter

with "Statin Not Given at Discharge" such that StatinDischarge.authorDatetime starts during Encounter.relevantPeriod

or "Statin Allergy" such that Allergy.PrevalencePeriod starts before or concurrent with end of Encounter.relevantPeriod

//EndRegion: Denominator Exceptions

//Region: Stratification

//NONE

//EndRegion: Stratification

//Region: Supplemental Data Elements

define "SDE Ethnicity":

["Patient Characteristic Ethnicity": "Ethnicity"] Characteristic

return Characteristic.code

define "SDE Payer":

["Patient Characteristic Payer": "Payer"] Characteristic

return Characteristic.code

define "SDE Race":

["Patient Characteristic Race": "Race"] Characteristic

return Characteristic.code

define "SDE Sex":

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

return Characteristic.code

//EndRegion: Supplemental Data Elements