eCQM Title: **HIV Annual Retention in Care**

eCQM Identifier (Measure Authoring Tool): 1157

eCQM Version Number: 1.2.000

CBE Number: Not Applicable

GUID: 0a5be684-2b49-47c7-ab25-087a968978cf

Measurement Period: January 1, 20XX through December 31, 20XX

Measure Steward: Health Resources & Services Administration

Measure Developer: Health Resources & Services Administration

Endorsed By: None

Description

Percentage of patients, regardless of age, with a diagnosis of Human Immunodeficiency Virus (HIV) during the first 240 days of the measurement period or before the measurement period who had at least two eligible encounters or at least one eligible encounter and one HIV viral load test that were at least 90 days apart within the measurement period

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Measure Scoring: Proportion

Measure Type: Process

Stratification: None

Risk Adjustment: None

Rate Aggregation: None

Rationale

The HIV "continuum of care" is the process of HIV testing, linkage to HIV care, initiation of antiretroviral therapy (ART), adherence to treatment, retention in care, and virologic suppression (Gardner et al 2011). Poor retention in care is associated with lower rates of ART use (Giordano et al 2003), delayed viral suppression (Crawford et al 2014), and increased risk of mortality (Giordano et al., 2007; Mugavero et al., 2009). This measure will help providers direct their attention and quality improvement efforts towards improving retention in care.

Clinical Recommendation Statement

"Retention in care should be routinely monitored. There are various ways to measure retention, including measures based on attended visits over a defined period of time (constancy measures) and measures based on missed visits. Both approaches are valid and independently predict survival. Missed visits and a prolonged time since the last visit are relatively easy to measure and should trigger efforts to retain or re-engage a person in care. Constancy measures (e.g., at least two visits that are at least 90 days apart over 1 year or at least one visit every 6 months over the last 2 years) can be used as clinic quality assurance measures" (Panel on Antiretroviral Guidelines for Adults and Adolescents, 2022, p. L-4).

"Poor retention in HIV care is associated with greater risk of death. Poor retention is more common in people who use substances, have serious mental health problems, have unmet socioeconomic needs (e.g., housing, food, transportation), lack financial resources or health insurance, have schedules that complicate adherence, have been recently incarcerated, or face stigma. At the provider and health system level, low trust in providers and a poor patient-provider relationship have been associated with lower retention, as has lower satisfaction with the clinic experience. Availability of appointments and timeliness of appointments (i.e., long delay from the request for an appointment to the appointment's date) and scheduling convenience are also factors" (Panel on Antiretroviral Guidelines for Adults and Adolescents, 2022, p. L-3).

"Recommendation 2: Systematic monitoring of retention in HIV care is recommended for all patients (II A): Retention in care is associated with improved individual health outcomes, including HIV biomarker and clinical variables, and may reduce community-level viral burden, with implications for secondary prevention. Although monitoring retention is routinely recommended, specific details, such as retention measures to be used and desired visit frequency, vary among jurisdictions and programs and should be in harmony with national and international guidelines. Many retention measures (for example, visit adherence, gaps in care, and visits per interval of time) and data sources (for example, surveillance, medical records, and administrative databases) have been used and may be applied in accordance with local resources and standards of care. As with monitoring of linkage, integration of data sources may enhance monitoring of retention" (Thompson et al., 2012, p. 4).

Improvement Notation: Higher score equals better quality

Reference

Reference Type: CITATION

Reference Text: 'Crawford, T. N., Sanderson, W. T., & Thornton, A. (2014). Impact of Poor Retention in HIV Medical Care on Time to Viral Load Suppression. Journal of the International Association of Providers of AIDS Care (JIAPAC), 13(3), 242–249. https://doi.org/10.1177/2325957413491431'

Reference

Reference Type: CITATION

Reference Text: 'Gardner, E. M., McLees, M. P., Steiner, J. F., Del Rio, C., & Burman, W. J. (2011). The spectrum of engagement in HIV care and its relevance to test-and-treat strategies for prevention of HIV infection. Clinical Infectious Diseases: An Official Publication of the Infectious Diseases Society of America, 52(6), 793–800. https://doi.org/10.1093/cid/ciq243'

Reference

Reference Type: CITATION

Reference Text: 'Giordano, T. P., Gifford, A. L., White, A. C., Suarez-Almazor, M. E., Rabeneck, L., Hartman, C., Backus, L. I., Mole, L. A., & Morgan, R. O. (2007). Retention in care: A challenge to survival with HIV infection. Clinical Infectious Diseases: An Official Publication of the Infectious Diseases Society of America, 44(11), 1493-1499. https://doi.org/10.1086/516778'

Reference

Reference Type: CITATION

Reference Text: 'Giordano, T. P., White, A. C., Sajja, P., Graviss, E. A., Arduino, R. C., Adu-Oppong, A., Lahart, C. J., & Visnegarwala, F. (2003). Factors associated with the use of highly active antiretroviral therapy in patients newly entering care in an urban clinic. Journal of Acquired Immune Deficiency Syndromes (JAIDS), 32(4), 399-405. https://doi.org/10.1097/00126334-200304010-00009'

Reference

Reference Type: CITATION

	Reference Text: 'Mugavero, M. J., Lin, H.-Y., Willig, J. H., Westfall, A. O., Ulett, K. B., Routman, J. S., Abroms, S., Raper, J. L., Saag, M. S., & Allison, J. J. (2009). Missed visits and mortality among patients establishing initial outpatient HIV treatment. Clinical Infectious Diseases: An Official Publication of the Infectious Diseases Society of America, 48(2), 248–256. https://doi.org/10.1086/595705' Reference Type: CITATION
Reference	Reference Text: 'Panel on Antiretroviral Guidelines for Adults and Adolescents. (2022). Guidelines for the use of antiretroviral agents in adults and adolescents with HIV. U.S. Department of Health and Human Services. https://clinicalinfo.hiv.gov/sites/default/files/guidelines/documents/adult-adolescent-arv/guidelines-adult-adolescent-arv.pdf' Reference Type: CITATION
Reference	Reference Text: 'Thompson, M. A., Mugavero, M. J., Amico, K. R., Cargill, V. A., Chang, L. W., Gross, R., Orrell, C., Altice, F. L., Bangsberg, D. R., Bartlett, J. G., Beckwith, C. G., Dowshen, N., Gordon, C. M., Horn, T., Kumar, P., Scott, J. D., Stirratt, M. J., Remien, R. H., Simoni, J. M., & Nachega, J. B. (2012). Guidelines for improving entry into and retention in care and antiretroviral adherence for persons with HIV: evidence-based recommendations from an International Association of Physicians in AIDS Care panel. Annals of Internal Medicine, 156(11), 817-294. https://doi.org/10.7326/0003-4819-156-11-201206050-00419'
Definition	To maintain consistency from year to year, this measure defines one month as equal to 30 days, three months as equal to 90 days and eight months as equal to 240 days. Only patients with an eligible encounter in the first eight months are included in this measure to allow for sufficient time to complete a second eligible encounter or viral load laboratory within the 12-month measurement period and at least 90 days after the initial encounter.
Guidance	A patient would be included in the measure numerator if they have either two eligible encounters or one eligible encounter and one viral load test at least 90 days apart from each other. The encounter or encounters that cause a patient to be included in the numerator do not need to include the encounter that caused the patient to be included in the denominator. This eCQM is a patient-based measure. This measure is to be submitted a minimum of once per measurement period for patients with a diagnosis of HIV during the first eight months of the measurement period. 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, regardless of age, with a diagnosis of HIV during the first 240 days of the measurement period or before the measurement period who had at least one eligible encounter during the first 240 days of the measurement period
Denominator	Equals Initial Population
Denominator Exclusions	None
Numerator	Number of patients who had at least one eligible encounter and one HIV viral load test at least 90 days apart during the measurement period, or who had at least two eligible encounters at least 90 days apart during the measurement period
Numerator Exclusions	Not Applicable
Denominator Exceptions	None
Supplemental Data Elements	For every patient evaluated by this measure also identify payer, race, ethnicity and sex

Table of Contents

Population Criteria

◢ Initial Population

"Has Active HIV Diagnosis Starts On or Before First 240 Days of Measurement Period"
and "Has Qualifying Encounter During First 240 Days of Measurement Period"

◢ Denominator

"Initial Population"

◢ Denominator Exclusions

None

◢ Numerator

"Has One Encounter With HIV and One Viral Load Test At Least 90 Days Apart"
or "Has Two Encounters With HIV At Least 90 Days Apart"

◢ Numerator Exclusions

None

◢ Denominator Exceptions

None

◢ Stratification

None

Definitions

◢ Denominator

"Initial Population"

◢ Encounter During Measurement Period With HIV

```
( ["Encounter, Performed": "Office Visit"]
  union ["Encounter, Performed": "Outpatient Consultation"]
  union ["Encounter, Performed": "Annual Wellness Visit"]
  union ["Encounter, Performed": "Face-to-Face Interaction"]
  union ["Encounter, Performed": "Home Healthcare Services"]
  union ["Encounter, Performed": "Preventive Care Services Established Office Visit, 18 and Up"]
  union ["Encounter, Performed": "Preventive Care Services Initial Office Visit, 18 and Up"]
  union ["Encounter, Performed": "Preventive Care Services, Initial Office Visit, 0 to 17"]
  union ["Encounter, Performed": "Preventive Care, Established Office Visit, 0 to 17"]
  union ["Encounter, Performed": "Telephone Visits"]
  union ["Encounter, Performed": "Unlisted preventive medicine service"] ) ValidEncounter
  with ["Diagnosis": "HIV"] HIVDiagnosis
    such that ValidEncounter.relevantPeriod during day of "Measurement Period"
      and HIVDiagnosis.prevalencePeriod starts on or before day of ValidEncounter.relevantPeriod
```

◢ Has Active HIV Diagnosis Starts On or Before First 240 Days of Measurement Period

```
exists ["Diagnosis": "HIV"] ActiveHIVDiagnosis
  where ActiveHIVDiagnosis.prevalencePeriod starts on or before day of ( start of "Measurement Period" + 240 days )
```

◢ Has One Encounter With HIV and One Viral Load Test At Least 90 Days Apart

```
exists "Encounter During Measurement Period With HIV" EncounterWithHIV
  with ["Laboratory Test, Performed": "HIV Viral Load"] ViralLoadTest
    such that ( Global."NormalizeInterval" ( ViralLoadTest.relevantDatetime, ViralLoadTest.relevantPeriod ) during "Measurement Period" )
      and ( ( Global."NormalizeInterval" ( ViralLoadTest.relevantDatetime, ViralLoadTest.relevantPeriod ) starts 90 days or more after day of end of
EncounterWithHIV.relevantPeriod )
          or ( EncounterWithHIV.relevantPeriod starts 90 days or more after day of end of Global."NormalizeInterval" ( ViralLoadTest.relevantDatetime,
ViralLoadTest.relevantPeriod ) )
      )
```

◢ Has Qualifying Encounter During First 240 Days of Measurement Period

```
exists ( ["Encounter, Performed": "Office Visit"]
  union ["Encounter, Performed": "Outpatient Consultation"]
  union ["Encounter, Performed": "Annual Wellness Visit"]
  union ["Encounter, Performed": "Face-to-Face Interaction"]
  union ["Encounter, Performed": "Home Healthcare Services"]
  union ["Encounter, Performed": "Preventive Care Services Established Office Visit, 18 and Up"]
  union ["Encounter, Performed": "Preventive Care Services Initial Office Visit, 18 and Up"]
  union ["Encounter, Performed": "Preventive Care Services, Initial Office Visit, 0 to 17"]
  union ["Encounter, Performed": "Preventive Care, Established Office Visit, 0 to 17"]
  union ["Encounter, Performed": "Telephone Visits"]
  union ["Encounter, Performed": "Unlisted preventive medicine service"] ) QualifyingEncounter
  where QualifyingEncounter.relevantPeriod during day of Interval[start of "Measurement Period", start of "Measurement Period" + 240 days]
```

◢ Has Two Encounters With HIV At Least 90 Days Apart

```
exists "Encounter During Measurement Period With HIV" EncounterWithHIV
  with "Encounter During Measurement Period With HIV" AnotherEncounterWithHIV
    such that EncounterWithHIV !~ AnotherEncounterWithHIV
      and AnotherEncounterWithHIV.relevantPeriod starts 90 days or more after day of end of EncounterWithHIV.relevantPeriod
```

◢ Initial Population

```
"Has Active HIV Diagnosis Starts On or Before First 240 Days of Measurement Period"
  and "Has Qualifying Encounter During First 240 Days of Measurement Period"
```

◢ Numerator

```
"Has One Encounter With HIV and One Viral Load Test At Least 90 Days Apart"
  or "Has Two Encounters With HIV At Least 90 Days Apart"
```

◢ 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.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 "Unlisted preventive medicine service" ("CPT Code (99429)")
- valueset "Annual Wellness Visit" (2.16.840.1.113883.3.526.3.1240)
- valueset "Ethnicity" (2.16.840.1.114222.4.11.837)
- valueset "Face-to-Face Interaction" (2.16.840.1.113883.3.464.1003.101.12.1048)
- valueset "HIV" (2.16.840.1.113883.3.464.1003.120.12.1003)
- valueset "HIV Viral Load" (2.16.840.1.113883.3.464.1003.120.12.1002)
- valueset "Home Healthcare Services" (2.16.840.1.113883.3.464.1003.101.12.1016)
- 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 "Outpatient Consultation" (2.16.840.1.113883.3.464.1003.101.12.1008)
- valueset "Payer Type" (2.16.840.1.114222.4.11.3591)
- valueset "Preventive Care Services Established Office Visit, 18 and Up" (2.16.840.1.113883.3.464.1003.101.12.1025)
- valueset "Preventive Care Services Initial Office Visit, 18 and Up" (2.16.840.1.113883.3.464.1003.101.12.1023)
- valueset "Preventive Care Services, Initial Office Visit, 0 to 17" (2.16.840.1.113883.3.464.1003.101.12.1022)
- valueset "Preventive Care, Established Office Visit, 0 to 17" (2.16.840.1.113883.3.464.1003.101.12.1024)
- valueset "Race" (2.16.840.1.114222.4.11.836)
- valueset "Telephone Visits" (2.16.840.1.113883.3.464.1003.101.12.1080)

Data Criteria (QDM Data Elements)

- "Diagnosis: HIV" using "HIV (2.16.840.1.113883.3.464.1003.120.12.1003)"
- "Encounter, Performed: Annual Wellness Visit" using "Annual Wellness Visit (2.16.840.1.113883.3.526.3.1240)"
- "Encounter, Performed: Face-to-Face Interaction" using "Face-to-Face Interaction (2.16.840.1.113883.3.464.1003.101.12.1048)"

- "Encounter, Performed: Home Healthcare Services" using "Home Healthcare Services (2.16.840.1.113883.3.464.1003.101.12.1016)"
- "Encounter, Performed: Office Visit" using "Office Visit (2.16.840.1.113883.3.464.1003.101.12.1001)"
- "Encounter, Performed: Outpatient Consultation" using "Outpatient Consultation (2.16.840.1.113883.3.464.1003.101.12.1008)"
- "Encounter, Performed: Preventive Care Services Established Office Visit, 18 and Up" using "Preventive Care Services Established Office Visit, 18 and Up (2.16.840.1.113883.3.464.1003.101.12.1025)"
- "Encounter, Performed: Preventive Care Services Initial Office Visit, 18 and Up" using "Preventive Care Services Initial Office Visit, 18 and Up (2.16.840.1.113883.3.464.1003.101.12.1023)"
- "Encounter, Performed: Preventive Care Services, Initial Office Visit, 0 to 17" using "Preventive Care Services, Initial Office Visit, 0 to 17 (2.16.840.1.113883.3.464.1003.101.12.1022)"
- "Encounter, Performed: Preventive Care, Established Office Visit, 0 to 17" using "Preventive Care, Established Office Visit, 0 to 17 (2.16.840.1.113883.3.464.1003.101.12.1024)"
- "Encounter, Performed: Telephone Visits" using "Telephone Visits (2.16.840.1.113883.3.464.1003.101.12.1080)"
- "Encounter, Performed: Unlisted preventive medicine service" using "Unlisted preventive medicine service (CPT Code 99429)"
- "Laboratory Test, Performed: HIV Viral Load" using "HIV Viral Load (2.16.840.1.113883.3.464.1003.120.12.1002)"
- "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)"

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