MEASURE WORKSHEET

This document summarizes the evaluation of the measure as it progresses through NQF's Consensus Development Process (CDP). The information submitted by measure developers/stewards is included after the Brief Measure Information, Preliminary Analysis, and Pre-meeting Public and Member Comments sections.

To navigate the links in the worksheet: Ctrl + click link to go to the link; ALT + LEFT ARROW to return

Brief Measure Information

NQF #: 3209
Measure Title: HIV medical visit frequency
Measure Steward: Health Resources and Services Administration - HIV/AIDS Bureau
Brief Description of Measure: Percentage of patients, regardless of age, with a diagnosis of HIV who had at least one medical visit in each 6-month period within 24 months with a minimum of 60 days between medical visits. A medical visit is any visit in an outpatient/ambulatory care setting with a nurse practitioner, physician, and/or a physician assistant who provides comprehensive HIV care.
Developer Rationale: Poor retention in care during the first year of outpatient medical care is associated with delayed or failed receipt of antiretroviral therapy, delayed time to virologic suppression and greater cumulative HIV burden, increased sexual risk transmission behaviors, increased risk of long-term adverse clinical events, and low adherence to antiretroviral therapy. Early retention in HIV care has been found to be associated with time to viral load suppression and 2-year cumulative viral load burden among patients newly initiating HIV medical care (8). In this study, each "no show" clinic visit conveyed a 17% increased risk of delayed viral load suppression. A dose- response relationship has been shown between constancy of visits during the first year (i.e. having an HIV primary care visit in each 3-month quarter) and survival. Another study examining care over a two-year period has found that mean increase from baseline CD4 counts was significantly greater among those with optimal retention (visits in all 4 six-month intervals) than among those with sub-optimal retention, and that mortality was higher among those with suboptimal retention.

In 2011, the HIV community saw the emergence of the HIV care continuum. This simple model outlines the sequential steps of medical care that people living with HIV go through from initial diagnosis to achieving the goal of viral suppression. The steps include diagnosis, linkage to care, retention in care, receipt of HIV antiretroviral therapy and viral suppression. This model has been incorporated into the National HIV/AIDS Strategy as it has focused all HIV prevention, care, and treatment efforts in the United States. As outlined in the model, all though there are five different steps, each step is dependent upon each other. For instance, you cannot become virally suppressed if you are not receiving HIV antiretroviral therapy or retained in medical care.

The most recent nationwide data from CDC dated 2014 estimates that although 86% of people living with HIV have been diagnosed, only 40% are engaged in care, 37% have been prescribed HIV antiretroviral therapy, and 30% have achieved viral suppression.

Right now, we are at a very special time and place. Many states and large metropolitan areas across the United States have developed plans to end the HIV epidemic in the communities. These jurisdictions have used the HIV care continuum and its steps as the framework by which they have developed their plans.

Numerator Statement: Patients who had at least one medical visit in each 6-month of a consecutive consecutive 24 month period with a minimum of 60 days between first medical visit in the prior 6-month period and the last medical visit in the subsequent 6-month period.
Denominator Statement: : Patients, regardless of age, diagnosed with HIV during the first 3 months of the year preceding the measurement period or prior to the measurement period with at least one medical visit in the first 6 months of the year preceding the measurement period.

The target population for this measure is all people living with HIV.
Denominator Exclusions: Patients who died at any time during the measurement period or the 12 months preceding the measurement period.

Measure Type: Process

Data Source: Electronic Health Record (Only)
Level of Analysis: Facility

New Measure -- Preliminary Analysis

Criteria 1: Importance to Measure and Report

1a. Evidence

1a. Evidence. The evidence requirements for a *process or intermediate outcome* measure is that it is based on a systematic review (SR) and grading of the body of empirical evidence where the specific focus of the evidence matches what is being measured.

This measure is the new eMeasure version of NQF #2079. The information provided for Evidence and Opportunity for Improvement is identical to that submitted for NQF #2079. Measure #2079 will be discussed first – the ratings for evidence and opportunity for improvement will automatically be assigned to this eMeasure without further discussion.

The developer provides the following evidence for this measure:

- **Systematic Review of the evidence specific to this measure?** ☐ **Yes** ☒ **No**
- **Quality, Quantity and Consistency of evidence provided?** ☐ **Yes** ☒ **No**
- **Evidence graded?** ☒ **Yes** ☐ **No**

Evidence Summary

- The developer provided a diagram outlining the sequential steps of medical care that people living with HIV go through from initial diagnosis to ultimately achieving viral suppression.
- The rationale for this measure states that prompt linkage and retention in HIV care is related to improving patient outcomes. Retention in medical care among people living with HIV (PLWH) is associated with an increase in baseline CD4 count; those patients not retained in care experience greater mortality than those who were retained in care.
- The evidence that supports this measure states that systematic monitoring of retention in care may include surveillance of visit adherence, gaps in care, and the number of visits during a specified period of time (note that this guideline is unrated).
    - Another recommendation states that systematic monitoring of retention in care is recommended for PLWH (level AII).
    - Measuring retention in HIV care using electronic health record and other health system data is recommended (BII)
- The developer also provides several other guidelines on HIV care and treatment with varying levels of evidence.

Questions for the Committee:

- *For possible exception to the evidence criterion:*
    - *Does the committee agree that viral suppression is a related heath outcome performance measure?*
    - *Does the SC agree that it is acceptable (or beneficial) to hold providers accountable for medical visit frequency without empirical evidence?*
- *Is there evidence of a systematic assessment of expert opinion beyond those involved in developing the measure that HIV medical visit frequency is linked to improved outcomes?*

Guidance from the Evidence Algorithm
Process measure is evidence based (Box 3) → Evidence based on systematic review and grading of the body of empirical evidence (Box 7) → Possible related outcome measures (Box 10)→ No exception → Insufficient

Preliminary rating for evidence: ☐ **High** ☐ **Moderate** ☐ **Low** ☒ **Insufficient**

RATIONALE: Although the developer provides multiple guidelines on HIV care, the guideline that supports the evidence is unrated and does not specify a specific time period to measure retention in care.

1b. Gap in Care/Opportunity for Improvement and 1b. Disparities
Maintenance measures – increased emphasis on gap and variation

1b. Performance Gap. The performance gap requirements include demonstrating quality problems and opportunity for improvement.

- There is no performance data available from this eCQM. However, the developer presented data from the HIV Research Network (a consortium of community and academic sites providing HIV care linked by a centralized Data Coordinating Center) on the number of patient's meeting the numerator criteria. The HIVRN is composed of 11 sites representing 4 major geographic divisions and of the insurance status and coverage types typical for the population in care. Data for 2011-2013 were not presented due to resource constraints.
- Patients were included in the numerator regardless of age, if they had a diagnosis of HIV and had a medical visit in the first 6 months of the measurement period. Patients who died were excluded.
- Summary statistics for the proportion of of 2014-2015 patients meeting the numerator are provided below. The performance rate was 66.7% in 2007-2008 and increased to 72.6% in 2014-2015. The table is found here.

	2014-2015 N=15,049	2009-2010 N=17,687	2008-2009 N=16,881	2007-2008 N=15,790
Minimum	55.1	50.1	42.5	47.1
Maximum	83.8	82.8	83.1	86.1
Mean	72.6	68.9	67.73	66.7
25th percentile	68.2	63.4	59.9	59.7
50th percentile	70.9	67.7	66.2	70.6
75th percentile	79.5	74.6	75.5	78.2

Disparities

- The developer presented client level performance scores for HIV medical visit frequency from the paper based measure, #2079. The table below shows disparities in HIV medical visit frequency among Hispanics, males and transgender and clients aged 18-29.

Demographic	2014-2015	2009-2010	2008-2009	2007-2008
African American/Caribbean	72.7	67.5	67.0	64.8
White, not Hispanic	75.2	67.9	65.8	67.3
Hispanic	67.9	73.9	72.9	71.2
Other	66.2	68.8	68.5	73.0
Male	69.9	68.	67.5	66.2
Female	76.0	69.8	68.4	68.2
Transgender	66.7	72.9	65.8	62.4
<18	88.7	87.8	87.3	87.2
18-29	62.9	56.8	54.2	53.3
30-49	67.5	66.4	66.0	64.6
50+	76.1	75.9	73.7	73.7

Questions for the Committee:

- *Without data from the eMeasure as specified, do you agree that there is a quality problem with retaining patients in care?*
- *Is the Committee aware of additional disparities data related to HIV medical visit frequency?*

o *Does the data demonstrate an adequate problem for HIV medical visit frequency among people living with HIV?*

Preliminary rating for opportunity for improvement: ☒ **High** ☐ **Moderate** ☐ **Low** ☐ **Insufficient**

Committee pre-evaluation comments

Criteria 1: Importance to Measure and Report (including 1a, 1b, 1c)

1a. Evidence

*I don't understand the denominator statement.
I agree that viral suppression is a related heath outcome performance measure
It is acceptable (or beneficial) to hold providers accountable for medical visit frequency without empirical evidence
There are guidelines, but no clear evidence of a systematic assessment of expert opinion beyond those involved in developing the measure that HIV medical visit frequency is linked to improved outcomes. Also, the time frames are unsupported."

*See comments from NQF#2079
*
Identical to #2079

1b. Performance Gap

*I agree that there is a quality problem with retaining patients in care
The data demonstrate a problem for HIV medical visit frequency among people living with HIV

*No performance data available from this eCQM, but see comments on NQF#2079 for comments on performance gap using HIVRN data.

*Identical to #2079

Criteria 2: Scientific Acceptability of Measure Properties

2a. Reliability

2a1. Reliability Specifications

Maintenance measures – no change in emphasis – specifications should be evaluated the same as with new measures

2a1. Specifications requires the measure, as specified, to produce consistent (reliable) and credible (valid) results about the quality of care when implemented.

Data source(s): Electronic health record only. This is an eMeasure.

Specifications:

- HQMF specifications for this eMeasure are included in the document set on SharePoint. See eMeasure Technical Review below.
- The level of analysis is at the facility level.
- The numerator includes patients who had at least one medical visit in each 6-month of a consecutive 24 month period with a minimum of 60 days between the first medical visit in the prior 6-month period and the last medical visit in the subsequent 6-month period.
- The denominator includes patients, regardless of age, diagnosed with HIV during the first 3 months of the year preceding the measurement period or prior to the measurement period with at least one medical visit in the first 6 months of the year preceding the measurement period.
- Patients are excluded if they died at any time during the measurement period or the 12 months preceding the measurement period.
- The value sets needed to calculate the numerator and denominator are included in the specifications.
- The calculation algorithm is included.

Questions for the Committee:

o *Are all the data elements clearly defined? Are all appropriate codes included?*

o *Is the logic or calculation algorithm clear?*

- *Is it likely this measure can be consistently implemented?*

eMeasure Technical Advisor(s) review (if not an eMeasure, delete this section):

Submitted measure is an HQMF compliant eMeasure	The submitted eMeasure specifications follow the industry accepted format for eMeasure (HL7 Health Quality Measures Format (HQMF)). **HQMF specifications** ☒ **Yes** ☐ **No**
Documentation of HQMF or QDM limitations	N/A – All components in the measure logic of the submitted eMeasure are represented using the HQMF and QDM
Value Sets	The submitted eMeasure specifications uses existing value sets when possible and uses new value sets that have been vetted through the VSAC
Measure logic is unambiguous	Submission includes test results from a simulated data set demonstrating the measure logic can be interpreted precisely and unambiguously;
Feasibility Testing	The submission contains a feasibility assessment that addresses data element feasibility and follow-up with measure developer indicates that the measure logic is feasible based on assessment by EHR vendors

2a2. Reliability Testing Testing attachment
Maintenance measures – less emphasis if no new testing data provided

2a2. Reliability testing demonstrates if the measure data elements are repeatable, producing the same results a high proportion of the time when assessed in the same population in the same time period and/or that the measure score is precise enough to distinguish differences in performance across providers.

SUMMARY OF TESTING

Reliability testing level ☐ **Measure score** ☒ **Data element** ☐ **Both**

Reliability testing performed with the data source and level of analysis indicated for this measure ☒ **Yes** ☐ **No**

Method(s) of reliability testing

- The dataset used for testing included 64 synthetic patients created in the Bonnie testing system simulating the year 2012. The developer tested the following data elements using the Bonnie testing tool to evaluate the measure logic:
  - Patient name
  - Date of birth
  - Race
  - Ethnicity
  - Gender
  - Payer
  - Diagnosis
  - Encounters
- The patient's bundle demographics were designed to mimic the HIV/AIDS population, specifically drawing from the patient characteristicds collected via the Ryan White HIV/AIDS Program Services Report (RSR).
- Data element validity testing was performed and will count for data element reliability – see validity testing section below.
- The developer provided reliability results from the paper based version of this measure (#2079) and stated, "Currently, there is no performance data available to test the eCQM. However, the chart-abstracted version of this measure has been in use in national quality reporting programs since as early as 2010."

Questions for the Committee:

- *Is the test sample adequate to generalize for widespread implementation?*

- *Do the results from the Bonnie tool demonstrate sufficient reliability so that differences in performance can be identified?*
- *Do you agree that the reliability test results of the eMeasure will be comparable to the paper based measure (#2079)?*

Guidance from the Reliability Algorithm Precise specifications (Box 1) →Empirical reliability testing (Box 2) →Empirical validity testing of patient-level data (Box 3) →Refer to validity testing of patient-level data elements using Bonnie tool (Box 10 of the Validity algorithm) →Method appropriate for legacy eMeasures (Box 11) → Moderate (Moderate is the highest possible rating)

Preliminary rating for reliability: ☐ **High** ☒ **Moderate** ☐ **Low** ☐ **Insufficient**

2b. Validity
Maintenance measures – less emphasis if no new testing data provided

2b1. Validity: Specifications

2b1. Validity Specifications. This section should determine if the measure specifications are consistent with the evidence.

Specifications consistent with evidence in 1a. ☒ **Yes** ☐ **Somewhat** ☐ **No**

Question for the Committee:

- *Are the specifications consistent with the evidence?*

2b2. Validity testing

2b2. Validity Testing should demonstrate the measure data elements are correct and/or the measure score correctly reflects the quality of care provided, adequately identifying differences in quality.

SUMMARY OF TESTING

Validity testing level ☐ **Measure score** ☒ **Data element testing against a gold standard** ☐ **Both**

Method of validity testing of the measure score:

- ☐ **Face validity**
- ☐ **Empirical validity testing of the measure score**

Validity testing method:

- The Bonnie testing tool, with 64 synthetic patient records were used to test the measure logic and data elements.
  - For each synthetic patients, an expected result was assigned to reflect an expected result of the measure. The synthetic patients were then run against the HQMF output loaded into Bonnie, which "calculates" a measure result for each patients and evaluates it against the expected result.
  - A patient is considered to pass Bonnie testing when the expected result matches the "calculated" result.
- The following testing was completed on the synthetic patients
  - 100% logic coverage: The bundle of synthetic patients collectively includes all data elements and conditions that are specified within the measure logic.
  - Edge case testing: Data elements that test the upper or lower boundary of measure logic conditions.
  - Negative testing: Use of test cases that do not evaluate positively against the measure logic but are otherwise clinically relevant and realistic.
- The developer used references cited within the chart abstracted measure specifications to ensure the eCQM logic maintained alignment with the clinical intent of the chart abstracted measure.
- In addition to Bonnie testing, the measure specifications were reviewed independently by three eCQM experts to confirm the logic was syntactically correct, using appropriate and current versions of the eCQM standards and terminologies, and consistent with the intent of the chart-abstracted measure.

Validity testing results:

- The testing results from the Bonnie tool reached 100% coverage and confirmed there was a test case for each pathway of logic (negative and positive test cases).
- The measure had a 100% passing rate which confirmed that all the test cases performed as expected.

Questions for the Committee:

- *Is the test sample adequate to generalize for widespread implementation?*
- *Do the results from the Bonnie tool demonstrate sufficient validity so that conclusions can be made about quality?*
- *Do you agree that the results of the eMeasure will be comparable to the chart-abstracted measure (#2079)?*

2b3-2b7. Threats to Validity

2b3. Exclusions:

- This measure has one exclusion – patient death during the measurement period. The developer reports that the exclusion was tested similarly to other criteria using synthetic patients in Bonnie. When the exclusion element was present, the patients were correctly excluded from the measure. In the absence of the exclusion element, cases were not excluded from the measure.

Questions for the Committee:

- *Are the exclusions consistent with the evidence?*
- *Are any patients or patient groups inappropriately excluded from the measure?*

2b4. Risk adjustment: **Risk-adjustment method** ☒ **None** ☐ **Statistical model** ☐ **Stratification**

2b5. Meaningful difference *(can statistically significant and clinically/practically meaningful differences in performance measure scores can be identified)*:

- As discussed in the paper based version (#2079), the measure detects providers with better or worse than median performance scores. There is a large difference between the minimum and maximum scores in each time period.
    - In 2014-2015, the mean performance for HIV medical visit frequency was 72.6%, up from 66.7% in 2007-2008. Providers in the 75th percentile had medical visit frequency rates at 79.5% in 2014-2015 compared to a rate of 68.2% for providers in the 25th percentile.

	2014-2015	2009-2010	2008-2009	2007-2008
# of Pts Included	15,049	17, 687	16, 881	15,790
Minimum	55.1%	50.1%	42.5%	47.1%
Maximum	83.8%	82.8%	83.1%	86.1%
Mean	72.6%	68.9%	67.73%	66.7%
25th percentile	68.2%	63.4%	59.9%	59.7%
50th percentile	70.9%	67.7%	66.2%	70.6%
75th percentile	79.5%	74.6%	75.5%	78.2%

Question for the Committee:

- *Does the Committee agree the e-Measure will demonstrate similar results to the chart-abstracted measure?*

2b6. Comparability of data sources/methods:

- Not applicable

2b7. Missing Data

- Per the developer, "The HQMF standard specifies that if data are unknown or missing, they shall fail the criterion. This constraint embodies the notion that absence of evidence is evidence of absence, i.e. data not present in a structured field from which the measure draws will not be considered for measure calculation. In certain cases, missing data may have no impact on the measure outcome for a given patient. For example, a data element used in a series of OR statements will not impact the measure outcome if another data element in the OR statement is present and meets all other defined constraints."

- All Bonnie synthetic patients with missing data performed according to the HQMF standard specification and as expected.

Guidance from the Validity Algorithm Specifications consistent with evidence (Box 1)→Some threats to validity addressed (Box 2) →Empirical validity testing (Box 3) → Face validity testing (Box 4) and empirical testing of data elements using Bonnie tool (Box 10) →Method appropriate for legacy eMeasures (Box 11) →Moderate (Moderate is the highest possible rating)

Preliminary rating for Validity: ☐ **High** ☒ **Moderate** ☐ **Low** ☐ **Insufficient**

Committee pre-evaluation comments

Criteria 2: Scientific Acceptability of Measure Properties (including all 2a, 2b, and 2d)

2a1. Reliability Specifications

*I don't understand the denominator.the data elements are clearly defined. hard to know if the calculations can be performed consistently since I do not understand the denominator.
the reliability test results of the eMeasure should be comparable to the paper based measure (#2079)"

*The data elements are clear and test results from simulated data set demonstrates measure logic can be interpreted precisely and unambiguously.

*All data elements are clearly defined.
The sample size is small but adequate (• The patient's bundle demographics were designed to mimic the HIV/AIDS population, specifically drawing from the patient characteristicds collected via the Ryan White HIV/AIDS Program Services Report (RSR).)

2a2. Reliability Testing

*The test sample is adequate to generalize for widespread implementation
The results from the Bonnie tool demonstrate sufficient validity so that conclusions can be made about quality
I agree that the results of the eMeasure will be comparable to the chart-abstracted measure (#2079)"

*Reliability was tested with adequate scope using an appropriate method and comparing reliability test results from the paper-based measure NQF#2079 found them to be comparable.

*Is the test sample adequate to generalize for widespread implementation?
Sample is small but adequate.
o Do the results from the Bonnie tool demonstrate sufficient reliability so that differences in performance can be identified?
Yes
o Do you agree that the reliability test results of the eMeasure will be comparable to the paper based measure (#2079)?
Yes.
"

2b1. Validity Specifications

*I don't think there is evidence to support the validity of this measure. Just guidelines.

*No inconsistencies are identified.

*None

2b2. Validity Testing

*Based on the Bonnie testing tool, all test cases performed as expected and the eCQM logic maintained alignment with the clinical intent of the NQF #2079 measure.

*The testing results from the Bonnie tool reached 100% coverage and confirmed there was a test case for each pathway of logic (negative and positive test cases).
The measure had a 100% passing rate which confirmed that all the test cases performed as expected. **"**

2b3-7 Threats to Validity

*2b.3 Exclusions are logical but no evidence presented to see if they are adequate
2b.5 I agree the e-Measure will demonstrate similar results to the chart-abstracted measure.
2b.7 no missing data"

*The eCQM measure shows similar results to the chart-abstracted measure NQF#2079.

* Per the developer, "The HQMF standard specifies that if data are unknown or missing, they shall fail the criterion. This constraint embodies the notion that absence of evidence is evidence of absence, i.e. data not present in a structured field from which the measure draws will not be considered for measure calculation. In certain cases, missing data may have no impact on the measure outcome for a given patient. For example, a data element used in a series of OR statements will not impact the measure outcome if another data element in the OR statement is present and meets all other defined constraints."
•All Bonnie synthetic patients with missing data performed according to the HQMF standard specification and as expected.

Criterion 3. Feasibility
Maintenance measures – no change in emphasis – implementation issues may be more prominent

3. Feasibility is the extent to which the specifications including measure logic, require data that are readily available or could be captured without undue burden and can be implemented for performance measurement.

- The developer provided information on feasibility testing in the eMeasure Feasibility Score Card. The developer did not identify the EHRs used for feasibility testing. Instead, the developer stated that the feasibility assessment was "conducted by consensus of a panel of MITRE clinical informatics, measure development, and eCQM standards experts".
- The developer provided a summary of the latest publicly available data on Meaningful Use EHR capabilities and provider performance on objectives and measures related to the eCQM's data elements:
    - CPOE – Meds
    - CPOE – Labs
    - Demographics
    - Problem List
    - Lab test results
- On a scale from 1 to 3 where 3 is the highest score, all but 3 of the data elements received a score of '3'.
    - Both 'Encounter, Performed: Face to Face' and 'Patient Characteristic Payer'scored a 2 on Data Standards.
        - The Score 2 definition for Data Standards is "terminology standards for this data element are currently available, but it is not consistently coded to standard terminology in the EHR, or the EHR does not easily allow such coding."
    - The data element 'Patient Characteristic Expired' scored a 2 on Data Accuracy. Data accuracy looks at the correctness of the information contained in the data element and whether the data source and recorder are specified. This data element is an exclusion of the measure.
        - The Score 2 definition for Data Acurracy is "the information may not be from the most authoritative source and/or has a moderate likelihood of being correct". The scorecard notes that this information is similar to "self-reporting of a vaccination".
        - The developer notes that "The accuracy of this data element is dependent on full end-to-end interoperability accross providers and between providers and public health agencies."
- The developer indicates that on a scale from 0 to 100 percent, the measure is currently 98.21% feasible and in one to two years, will be 98.81% feasible.
- The measure specifications contain limited proprietary codes for convenience. Users of CPT(R) should obtain all necessary licenses from the owners of these code sets.
- The use of SNOMED Clinical Terms(R) requires a Unified Medical Language System (UMLS) license. These licenses are freely available, from the National Library of Medicine.

Questions for the Committee:

- *Are the required data elements routinely generated and used during care delivery?*
- *Does the eMeasure Feasibility Score Card demonstrate acceptable feasibility in multiple EHR systems and sites?*

o *The data element 'Patient Characteristic Expired', the exclusion for this measure, was scored 2 out of 3 for data accuracy on the feasibility scorecard. Does the Committee believe this score impacts the measure's feasibility?*

Preliminary rating for feasibility: ☐ **High** ☒ **Moderate** ☐ **Low** ☐ **Insufficient**

Committee pre-evaluation comments

Criteria 3: Feasibility

3. Feasibility

*The required data elements routinely were routinely generated and used during care delivery at these sites. Further testing will be needed to see how other EHRs work.

*The developer did not identify the EHRs used for feasibility testing, thus the possibility that some EHRs might not be able to routinely generate the data elements, has not been discarded. While this may not be a considerable problem, it would be helpful to assess.

*All data elements are routinely generated.
No issues or concerns.
o Are the required data elements routinely generated and used during care delivery? Yes.
o Does the eMeasure Feasibility Score Card demonstrate acceptable feasibility in multiple EHR systems and sites? Yes, very high.
o The data element 'Patient Characteristic Expired', the exclusion for this measure, was scored 2 out of 3 for data accuracy on the feasibility scorecard. Does the Committee believe this score impacts the measure's feasibility? No. This may be updated during the course of follow up of patient's who don't meet the measure.
"

Criterion 4: Usability and Use

Maintenance measures – increased emphasis – much greater focus on measure use and usefulness, including both impact /improvement and unintended consequences

4. Usability and Use evaluate the extent to which audiences (e.g., consumers, purchasers, providers, policymakers) use or could use performance results for both accountability and performance improvement activities.

Current uses of the measure
Publicly reported? ☐ **Yes** ☒ **No**

Current use in an accountability program? ☐ **Yes** ☒ **No** ☐ **UNCLEAR**
OR
Planned use in an accountability program? ☒ **Yes** ☐ **No**

Accountability program details

- This newly developed eMeasure is not currently in an accountability program; however it was reviewed by NQF's Measure Applications Partnership (MAP) for consideration in CMS' Merit Based Incentive Payment Program (MIPS).

Improvement results

- The developer reports performance data from the paper based version of the measure that retention in care has improved over time, stating that of 15,000 patients in the HIVRN database, performance increased from 66.7% in 2007-2008 to 72.6% in 2014-2015.

Unexpected findings (positive or negative) during implementation

- The developer reports that the paper based version of this measure has been adopted by CMS, by the Secretary of the Department of Health and Human Services as a core HIV indicator and in other care settings.

Potential harms

- The developer reports no harms in using the measure.

Vetting of the measure

- According to the developer, the measure has been used in national quality improvement campaigns with participants committing to use the measure, report performance scores and to develop quality improvement project based on the measure. Scores and disparity stratification are shared with participants to benchmark performance.
- In the national quality improvement campaign, data were collected and aggregated every other month. Reports included data tables and spark lines are reported on a public website and via national webinars.

Feedback:

- The developer reports that RWHAP grant recipients have provided positive and supportive feedback for this measure. RWHAP grant recipients have encouraged further stratification, dissemination methods, and graphical presentations.
- Additional feedback notes the encouragement of alignment of measure details (e.g. numerator, denominator, exclusions) across related performance measures and measure programs in order to reduce burden.

***Questions for the Committee**:*

- *How can the performance results be used to further the goal of high-quality, efficient healthcare?*
- *Do the benefits of the measure outweigh any potential unintended consequences?*
- *How has the eCQM been vetted in real-world settings by those being measure or others?*

Preliminary rating for usability and use: ☐ **High** ☒ **Moderate** ☐ **Low** ☐ **Insufficient**

Committee pre-evaluation comments

Criteria 4: Usability and Use

4. Usability and Use

* Similar comments to NQF#2079.

*How can the performance results be used to further the goal of high-quality, efficient healthcare?
Follow up of persons who do not meet the measure is possible to identify barriers to care and re-engagement in HIV care.

o Do the benefits of the measure outweigh any potential unintended consequences?
Yes, may help to improve retention in care and viral suppression. No specific unintended consequences.

o How has the eCQM been vetted in real-world settings by those being measure or others?
Limited data provided by developer. Local data available.

"

Criterion 5: Related and Competing Measures

Related or competing measures

- he following measures are listed as related or competing:
  - 2080 Gap in HIV Medical Visits – population but different measurement periods
  - 2082 HIV viral suppression
  - 2083 Prescription of HIV Antiretroviral Therapy
  - 3211 Prescription of HIV Antiretroviral Therapy (newly submitted eMeasure)
  - 3210 HIV viral suppression (newly submitted eMeasure)
  - 3010 HIV Medical Visit Frequency
  - 0405 HIV/AIDS: Pneumocystis Jiroveci Pneumonia (PCP) Prophylaxis – related population only

- 0409 HIV/AIDS: Sexually Transmitted Disease Screening for Chlamydia, Gonorrhea, and Syphilis – related population only

Harmonization

- The developer notes that this measure is harmonized with the measures listed above. For these measures, the target population is the same (i.e., people living with HIV) however the measure focus is different.

Endorsement + Designation

The "Endorsement +" designation identifies measures that exceed NQF's endorsement criteria in several key areas. After a Committee recommends a measure for endorsement, it will then consider whether the measure also meets the "Endorsement +" criteria.

This measure is a candidate for the "Endorsement +" designation IF the Committee determines that it: meets evidence for measure focus without an exception; is reliable, as demonstrated by score-level testing; is valid, as demonstrated by score-level testing (not via face validity only); and has been vetted by those being measured or other users.

Eligible for Endorsement + designation: ☐ **Yes x No**

RATIONALE IF NOT ELIGIBLE:

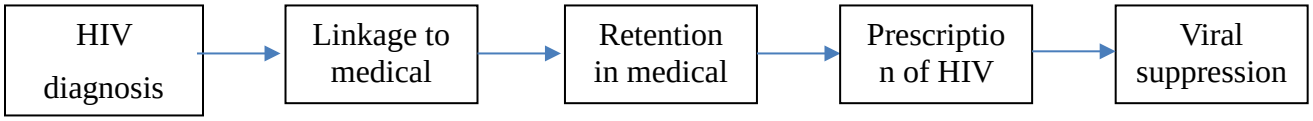
This measure is not eligible for Endorsement + designation since the measure score was tested by face validity only.

Pre-meeting public and member comments

- Please review my comment on NQF#2079 related to the rigidity of frequency measures and their inability to apply to all people with HIV given established practice and clinical guidelines

Measure Title: HIV Medical Visit Frequency

1a.12 LOGIC MODEL



Although the above diagram outlines the sequential septs of medical care that people living with HIV go through form initial diagnosis to achieving the goal of viral suppression (also known as the HIV care continuum). For some patients, this is a linear path with sustained viral suppression for many years. For other patients, there may be years between diagnosis and linkage. Yet still for others, retention in medical care is not consistent, which results in missed visits, no prescription for or adherence to HIV antiretroviral therapy (ART), and lack of viral suppression.

1a.2 FOR OUTCOME MEASURES including PATIENT REPORTED OUTCOMES State the rationale supporting the relationship between the health outcome (or PRO) to at least one healthcare structure, process (e.g., intervention, or service).

Regularly attending medical visits (retention) is paramount to monitoring patient's health status, screenings, and laboratory values. Providers need this information to make an informed decision in order to prescribe HIV antiretroviral

therapy (ART). ART reduces HIV-associated morbidity and mortality by maximally inhibiting HIV replication (as defined by achieving and maintaining plasma HIV RNA (viral load) below levels detectable by commercially available assays). Durable viral suppression improves immune function and quality of life, lowers the risk of both AIDS-defining and non-AIDS-defining complications, and prolongs life. Emerging evidence also suggests that additional benefits of ART-induced viral load suppression include a reduction in HIV-associated inflammation and possibly its associated complications.

In 2011, the HIV community saw the emergence of the HIV care continuum. This simple model outlines the sequential steps of medical care that people living with HIV go through from initial diagnosis to achieving the goal of viral suppression. The steps include diagnosis, linkage to care, retention in care, receipt of HIV antiretroviral therapy and viral suppression. This model has been incorporated into the National HIV/AIDS Strategy as it has focused all HIV prevention, care, and treatment efforts in the United States. As outlined in the model, all though there are five different steps, each step is dependent upon each other. For instance, you cannot become virally suppressed if you are not receiving HIV antiretroviral therapy or retained in medical care.

The most recent nationwide data from CDC dated 2014 estimates that although 86% of people living with HIV have been diagnosed, only 40% are engaged in care, 37% have been prescribed HIV antiretroviral therapy, and 30% have achieved viral suppression.

Right now, we are at a very special time and place. Many states and large metropolitan areas across the United States have developed plans to end the HIV epidemic in the communities. These jurisdictions have used the HIV care continuum and its steps as the framework by which they have developed their plans.

In closing, the measures we have put forth are in alignment with the HIV care continuum. We see these measures as a suite – each important as individual measures, but work together as a suite to improve health outcomes for people living with HIV in the United States.

1b.1. Briefly explain the rationale for this measure (e.g., how the measure will improve the quality of care, the benefits or improvements in quality envisioned by use of this measure)

Prompt linkage to, and sustained retention in, HIV medical care have been clearly shown to maximize patient outcomes. Retention in medical care among people living with HIV is associated with a significantly greater mean increase in baseline CD4 count. Consequently, mortality was higher among those with suboptimal retention.

Poor retention in care during the first year of outpatient medical care is associated with delayed or failed receipt of antiretroviral therapy, delayed time to virologic suppression and greater cumulative HIV burden, increased sexual risk transmission behaviors, increased risk of long-term adverse clinical events, and low adherence to antiretroviral therapy.

1a.4. CLINICAL PRACTICE GUIDELINE RECOMMENDATION

1a.4.1. Guideline citation (*including date*) and **URL for guideline** (*if available online*):

Panel on Antiretroviral Guidelines for Adults and Adolescents. Guidelines for the use of antiretroviral agents in HIV-1-infected adults and adolescents. Department of Health and Human Services, Accessed November 18, 2016: http://www.aidsinfo.nih.gov/ContentFiles/AdultandAdolescentGL.pdf

World Health Organization (WHO). (2016). Consolidated guidelines on the use of antiretroviral drugs for treating and preventing HIV infection: recommendations for a public health approach. Accessed November 18, 2016: http://apps.who.int/iris/bitstream/10665/208825/1/9789241549684_eng.pdf?ua=1

International Advisory Panel on HIV Care Continuum Optimization (IAPAC). (2015). IAPAC Guidelines for Optimizing the HIV Care Continuum for Adults and Adolescents. Accessed November 18, 2016. http://www.iapac.org/uploads/JIAPAC-IAPAC-Guidelines-for-Optimizing-the-HIV-Care-Continuum-Supplement-Nov-Dec-2015.pdf

1a.4.2. Identify guideline recommendation number and/or page number and **quote verbatim, the specific guideline recommendation**.

Panel on Antiretroviral Guidelines for Adults and Adolescents: (unrated)

- The critical elements of adherence go hand in hand with linkage-to-care and retention in care. A recently released guideline provides a number of strategies to improve entry and retention in care and adherence to therapy for HIV infected patients. As with adherence monitoring, research advances offer many options for systematic monitoring of retention in care that may be used in accordance with local resources and standards. The options include surveillance of visit adherence, gaps in care, and the number of visits during a specified period of time. (page K-4)
- In addition to maintaining high levels of medication adherence, attention to effective linkage to care, engagement in care, and retention in care is critical for successful treatment outcomes. To foster treatment success, there are interventions to support each step in the cascade of care, as well as guidance on systematic monitoring of each step in the cascade. (page K-4)
- Where youth services are available, they may be helpful to consider as one approach to enhancing HIV care engagement and retention among adolescents. Regardless of the setting, expertise in caring for adolescents is critical to creating a supportive environment for engaging youth in care. (I-9)

World Health Organization:

Section 6. 5 Retention in care (page 251)

- Programmes should provide community support for people living with HIV to improve retention in HIV care (strong recommendation, low-quality evidence).
- The following community-level interventions have demonstrated benefit in improving retention in care:
    - package of community based interventions (children low-quality and adults very low-quality evidence)
    - adherence clubs (moderate-quality evidence)
    - extra care for high-risk people (very low-quality evidence).

Section 6.7 Frequency of clinical visits and medical pick-up (page 259)

- Less frequent clinical visits (3–6 months) are recommended for people stable on ART (strong recommendation, moderate-quality evidence)
- Less frequent medication pickups (3-6 months) are recommended for people stable on ART (strong recommendation, low-quality evidence)

IAPAC on HIV Care Continuum Optimization: (page 6)

23. Systematic monitoring of retention in HIV care is recommended for all patients. (A II)
23a. Retention in HIV care should be considered as a quality indicator. (B III)
23b. Measuring retention in HIV care using electronic health record and other health system data is recommended. (BII)
23c. Use of clinic databases/surveillance systems for HIV clinical monitoring and population-level tracking is recommended. (B II)
26. Patient education about and offering support for medication adherence and keeping clinic appointments are recommended. (A I)
28. Proactive engagement and reengagement of patients who miss clinic appointments and/or are lost to follow-up, including intensive outreach for those not engaged in care within 1 month of a new HIV diagnosis, is recommended. (B II)
28a. Case management to retain PLHIV in care and to locate and reengage patients lost to follow-up is recommended. (B II)
28b. Transportation support for PLHIV to attend their clinic visits is recommended. (B II)

1a.4.3. Grade assigned to the quoted recommendation with definition of the grade:

Guidelines for the Use of Antiretroviral Agents in HIV-1-Infected Adults and Adolescents and Recommendations for Use of Antiretroviral Drugs in Pregnant HIV-1-Infected Women for Maternal Health and Interventions to Reduce Perinatal HIV Transmission in the United States

Basis for Recommendations
Recommendations in these guidelines are based upon scientific evidence and expert opinion. Each recommended statement includes a letter (A, B, or C) that represents the strength of the recommendation and a Roman numeral (I, II, or III) that represents the quality of the evidence that supports the recommendation (see Table 2).

Table 2. Rating Scheme for Recommendations

Strength of Recommendation	Quality of Evidence for Recommendation
A: Strong recommendation for the statement **B:** Moderate recommendation for the statement **C:** Optional recommendation for the statement	**I:** One or more randomized trials with clinical outcomes and/or validated laboratory endpoints **II:** One or more well-designed, non-randomized trials or observational cohort studies with long-term clinical outcomes **III:** Expert opinion

International Advisory Panel on HIV Care Continuum Optimization; IAPAC Guidelines for Optimizing the HIV Care Continuum for Adults and Adolescents.

Strong (A) = Almost all patients should receive the recommended course of action.
Moderate (B) = Most patients should receive the recommended course of action. However, other choices may be appropriate for some patients.
Optional (C) There may be consideration for this recommendation based on individual patient circumstances. Not recommended routinely.

Quality of the Body of Evidence and its Interpretation:

Excellent (I) = Randomized control trial (RCT) evidence without important limitations; overwhelming evidence from observational studies
High (II) = RCT evidence with important limitations; strong evidence from observational studies
Medium (III) = RCT evidence with critical limitations; observational study without important limitations
Low (IV) = Other evidence, including extrapolations from bench research, usual practice, expert opinion, consensus guidelines; observational study evidence with important or critical limitations

World Health Organization. Consolidated guidelines on the use of antiretroviral drugs for treating and preventing HIV infection Recommendations for a public health approach - Second edition.

The strength of a recommendation can be either strong or conditional.
Process of guideline development This edition of the guidelines was revised in accordance with procedures established by the WHO Guidelines Review Committee. New clinical and operational recommendations in the guidelines are based on the GRADE (Grading of Recommendations, Assessment, Development and Evaluation) approach to reviewing evidence. Modelling, expert consultations and country case studies have all strongly informed the guidelines. The process has also identified key gaps in knowledge that will help to guide the future HIV research agenda. A strong recommendation is one for which there is confidence that the desirable effects of adherence to the recommendation clearly outweigh the undesirable effects.
A conditional recommendation is one for which the Guideline Development Group concludes that the desirable effects of adherence to the recommendation probably outweigh the undesirable effects or are closely balanced, but the Groups are not confident about these trade-offs in all situations. At implementation, monitoring and rigorous evaluation is

needed to address these uncertainties, which are likely to provide new evidence that may change the calculation of the balance of trade-offs and to suggest how to overcome any implementation challenges.

Quality of evidence Definition
Table 1.1. GRADE quality of evidence

Quality of evidence	Definition
High	We are very confident that the true effect lies close to that of the estimate of the effect
Middle	We are moderately confident in the effect estimate: the true effect is likely to be close to the estimate of effect, but there is a possibility that it is substantially different
Low	Our confidence in the effect estimate is limited: the true effect may be substantially different from the estimate of the effect
Very low	We have very little confidence in the effect estimate: the true effect is likely to be substantially different from the estimate of the effect

1a.4.4. Provide all other grades and associated definitions for recommendations in the grading system. (*Note: If separate grades for the strength of the evidence, report them in section 1a.7.*)
All grade and definitions noted in 1a.4.3

1a.4.5. Citation and URL for methodology for grading recommendations (*if different from 1a.4.1*)**:**
Citations noted in 1a.4.1

1a.4.6. If guideline is evidence-based (rather than expert opinion), are the details of the quantity, quality, and consistency of the body of evidence available (e.g., evidence tables)?
X☐ Yes → ***complete section 1a.7***
☐ No → ***report on another systematic review of the evidence in sections 1a.6 and 1a.7; if another review does not exist, provide what is known from the guideline review of evidence in 1a.7***

1. Evidence, Performance Gap, Priority – Importance to Measure and Report

Extent to which the specific measure focus is evidence-based, important to making significant gains in healthcare quality, and improving health outcomes for a specific high-priority (high-impact) aspect of healthcare where there is variation in or overall less-than-optimal performance. ***Measures must be judged to meet all sub criteria to pass this criterion and be evaluated against the remaining criteria.***

1a. Evidence to Support the Measure Focus – See attached Evidence Submission Form
MVF_evidence_NQF-636179032321042047.docx
1a.1 <u>For Maintenance of Endorsement:</u> Is there new evidence about the measure since the last update/submission?
Please update any changes in the evidence attachment in red. Do not remove any existing information. If there have been any changes to evidence, the Committee will consider the new evidence. If there is no new evidence, no updating of the evidence information is needed.
Yes

1b. Performance Gap
Demonstration of quality problems and opportunity for improvement, i.e., data demonstrating:
- considerable variation, or overall less-than-optimal performance, in the quality of care across providers; and/or
- Disparities in care across population groups.

1b.1. Briefly explain the rationale for this measure *(e.g., how the measure will improve the quality of care, the benefits or improvements in quality envisioned by use of this measure)*

IF a PRO-PM (e.g. HRQoL/functional status, symptom/burden, experience with care, health-related behaviors), provide evidence that the target population values the measured PRO and finds it meaningful. (Describe how and from whom their input was obtained.)
IF a COMPOSITE (e.g., combination of component measure scores, all-or-none, any-or-none), SKIP this question and provide rationale for composite in question 1c.3 on the composite tab.
Poor retention in care during the first year of outpatient medical care is associated with delayed or failed receipt of antiretroviral therapy, delayed time to virologic suppression and greater cumulative HIV burden, increased sexual risk transmission behaviors, increased risk of long-term adverse clinical events, and low adherence to antiretroviral therapy. Early retention in HIV care has been found to be associated with time to viral load suppression and 2-year cumulative viral load burden among patients newly initiating HIV medical care (8). In this study, each "no show" clinic visit conveyed a 17% increased risk of delayed viral load suppression. A dose- response relationship has been shown between constancy of visits during the first year (i.e. having an HIV primary care visit in each 3-month quarter) and survival. Another study examining care over a two-year period has found that mean increase from baseline CD4 counts was significantly greater among those with optimal retention (visits in all 4 six-month intervals) than among those with sub-optimal retention, and that mortality was higher among those with suboptimal retention.

In 2011, the HIV community saw the emergence of the HIV care continuum. This simple model outlines the sequential steps of medical care that people living with HIV go through from initial diagnosis to achieving the goal of viral suppression. The steps include diagnosis, linkage to care, retention in care, receipt of HIV antiretroviral therapy and viral suppression. This model has been incorporated into the National HIV/AIDS Strategy as it has focused all HIV prevention, care, and treatment efforts in the United States. As outlined in the model, all though there are five different steps, each step is dependent upon each other. For instance, you cannot become virally suppressed if you are not receiving HIV antiretroviral therapy or retained in medical care.

The most recent nationwide data from CDC dated 2014 estimates that although 86% of people living with HIV have been diagnosed, only 40% are engaged in care, 37% have been prescribed HIV antiretroviral therapy, and 30% have achieved viral suppression.

Right now, we are at a very special time and place. Many states and large metropolitan areas across the United States have developed plans to end the HIV epidemic in the communities. These jurisdictions have used the HIV care continuum and its steps as the framework by which they have developed their plans.

1b.2. **Provide performance scores on the measure as specified (current and over time) at the specified level of analysis**. *(This is required for maintenance of endorsement. Include mean, std dev, min, max, interquartile range, scores by decile. Describe the data source including number of measured entities; number of patients; dates of data; if a sample, characteristics of the entities include.) This information also will be used to address the sub-criterion on improvement (4b) under Usability and Use.*
Please see attachment "MVF submission form" for formatted data.

1b.3. **If no or limited performance data on the measure as specified is reported in 1b2, then provide a summary of data from the literature that indicates opportunity for improvement or overall less than optimal performance on the specific focus of measurement.**
N/A

1b.4. **Provide disparities data from the measure as specified (current and over time) by population group, e.g., by race/ethnicity, gender, age, insurance status, socioeconomic status, and/or disability.** *(This is required for maintenance of endorsement. Describe the data source including number of measured entities; number of patients; dates of data; if a sample, characteristics of the entities included.) For measures that show high levels of performance, i.e., "topped out", disparities data may demonstrate an opportunity for improvement/gap in care for certain sub-populations. This information also will be used to address the sub-criterion on improvement (4b) under Usability and Use.*
Please see attachment "MVF submission form" for formatted data.

1b.5. **If no or limited data on disparities from the measure as specified is reported in 1b.4, then provide a summary of data from the literature that addresses disparities in care on the specific focus of measurement. Include citations. Not necessary if performance data provided in 1b.4**
N/A

2. Reliability and Validity—Scientific Acceptability of Measure Properties

Extent to which the measure, as specified, produces consistent (reliable) and credible (valid) results about the quality of care when implemented. ***Measures must be judged to meet the sub criteria for both reliability and validity to pass this criterion and be evaluated against the remaining criteria.***

2a.1. Specifications The measure is well defined and precisely specified so it can be implemented consistently within and across organizations and allows for comparability. eMeasures should be specified in the Health Quality Measures Format (HQMF) and the Quality Data Model (QDM).

De.5. **Subject/Topic Area** *(check all the areas that apply):*
Infectious Diseases (ID) : HIV/AIDS

De.6. **Cross Cutting Areas** *(check all the areas that apply):*
«crosscutting_area»

De.7. **Target Population Category** *(Check all the populations for which the measure is specified and tested if any):*
Populations at Risk

S.1. **Measure-specific Web Page** *(Provide a URL link to a web page specific for this measure that contains current detailed specifications including code lists, risk model details, and supplemental materials. Do not enter a URL linking to a home page or to general information.)*
There is no measure-specific web page for the electronic version of this measure.

S.2a. **If this is an eMeasure**, HQMF specifications must be attached. Attach the zipped output from the eMeasure authoring tool (MAT) - if the MAT was not used, contact staff. (Use the specification fields in this online form for the plain-language description of the specifications)
This is an eMeasure **Attachment:**
NQFXXX_MedicalVisitFrequency_Artifacts.zip,NQFXXX_MedicalVisitFrequency_MeasureSubmissionForm-636179038006883388.docx

S.2b. **Data Dictionary, Code Table, or Value Sets** *(and risk model codes and coefficients when applicable) must be attached. (Excel or csv file in the suggested format preferred - if not, contact staff)*
Attachment **Attachment:** HIVMVF_v4_6_Thu_Dec_15_20.35.34_CST_2016.xls

S.3.1. **For maintenance of endorsement:** Are there changes to the specifications since the last updates/submission. If yes, update the specifications for S1-2 and S4-22 and explain reasons for the changes in S3.2.
No

S.3.2. **For maintenance of endorsement,** please briefly describe any important changes to the measure specifications since last measure update and explain the reasons.
None

S.4. **Numerator Statement** *(Brief, narrative description of the measure focus or what is being measured about the target population, i.e., cases from the target population with the target process, condition, event, or outcome) DO NOT include the rationale for the measure.*
IF an OUTCOME MEASURE, state the outcome being measured. Calculation of the risk-adjusted outcome should be described in the calculation algorithm (S.14).
Patients who had at least one medical visit in each 6-month of a consecutive consecutive 24 month period with a minimum of 60 days between first medical visit in the prior 6-month period and the last medical visit in the subsequent 6-month period.

S.5. **Numerator Details** *(All information required to identify and calculate the cases from the target population with the target process, condition, event, or outcome such as definitions, time period for data collection, specific data collection items/responses, code/value sets – Note: lists of individual codes with descriptors that exceed 1 page should be provided in an Excel or csv file in*

required format at S.2b)
IF an OUTCOME MEASURE, describe how the observed outcome is identified/counted. Calculation of the risk-adjusted outcome should be described in the calculation algorithm (S.14).
HIV medical visits are represented by a QDM variable that is comprised of the below seven different encounter type QDM elements:

- Encounter, Performed: Face-to-Face Interaction using Face-to-Face Interaction Grouping Value Set (2.16.840.1.113883.3.464.1003.101.12.1048)
- Encounter, Performed: Office Visit using Office Visit Grouping Value Set (2.16.840.1.113883.3.464.1003.101.12.1001)
- Encounter, Performed: Outpatient Consultation using Outpatient Consultation Grouping Value Set (2.16.840.1.113883.3.464.1003.101.12.1008)
- Encounter, Performed: Preventive Care - Established Office Visit, 0 to 17 using Preventive Care - Established Office Visit, 0 to 17 Grouping Value Set (2.16.840.1.113883.3.464.1003.101.12.1024)
- Encounter, Performed: Preventive Care Services - Established Office Visit, 18 and Up using Preventive Care Services - Established Office Visit, 18 and Up Grouping Value Set (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 Grouping Value Set (2.16.840.1.113883.3.464.1003.101.12.1023)
- Encounter, Performed: Preventive Care- Initial Office Visit, 0 to 17 using Preventive Care- Initial Office Visit, 0 to 17 Grouping Value Set (2.16.840.1.113883.3.464.1003.101.12.1022)

S.6. **Denominator Statement** *(Brief, narrative description of the target population being measured)*
Patients, regardless of age, diagnosed with HIV during the first 3 months of the year preceding the measurement period or prior to the measurement period with at least one medical visit in the first 6 months of the year preceding the measurement period.

The target population for this measure is all people living with HIV.

S.7. **Denominator Details** *(All information required to identify and calculate the target population/denominator such as definitions, time period for data collection, specific data collection items/responses, code/value sets – Note: lists of individual codes with descriptors that exceed 1 page should be provided in an Excel or csv file in required format at S.2b.)*
IF an OUTCOME MEASURE, describe how the target population is identified. Calculation of the risk-adjusted outcome should be described in the calculation algorithm (S.14).
The patient's HIV diagnosis is represented by the QDM element "Diagnosis: HIV" using "HIV Grouping Value Set (2.16.840.1.113883.3.464.1003.120.12.1003)". The patient's medical visits are represented by the following QDM elements:

- Encounter, Performed: Face-to-Face Interaction using Face-to-Face Interaction Grouping Value Set (2.16.840.1.113883.3.464.1003.101.12.1048)
- Encounter, Performed: Office Visit using Office Visit Grouping Value Set (2.16.840.1.113883.3.464.1003.101.12.1001)
- Encounter, Performed: Outpatient Consultation using Outpatient Consultation Grouping Value Set (2.16.840.1.113883.3.464.1003.101.12.1008)
- Encounter, Performed: Preventive Care - Established Office Visit, 0 to 17 using Preventive Care - Established Office Visit, 0 to 17 Grouping Value Set (2.16.840.1.113883.3.464.1003.101.12.1024)
- Encounter, Performed: Preventive Care Services - Established Office Visit, 18 and Up using Preventive Care Services - Established Office Visit, 18 and Up Grouping Value Set (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 Grouping Value Set (2.16.840.1.113883.3.464.1003.101.12.1023)
- Encounter, Performed: Preventive Care- Initial Office Visit, 0 to 17 using Preventive Care- Initial Office Visit, 0 to 17 Grouping Value Set (2.16.840.1.113883.3.464.1003.101.12.1022)

The target population is identified by selecting patients based on their diagnosis with HIV.

S.8. **Denominator Exclusions** *(Brief narrative description of exclusions from the target population)*
Patients who died at any time during the measurement period or the 12 months preceding the measurement period.

S.9. **Denominator Exclusion Details** *(All information required to identify and calculate exclusions from the denominator such as definitions, time period for data collection, specific data collection items/responses, code/value sets – Note: lists of individual codes with descriptors that exceed 1 page should be provided in an Excel or csv file in required format at S.2b.)*

Denominator exclusions are a subset of the denominator that should not be considered for inclusion in the numerator. This measure denominator exclusion excludes patients who died at any time during the measurement period or the 12 months preceding the measurement period.
Patient death is identified by using the QDM datatype of "Patient Characteristic Expired." In alignment with the CMS/ONC Electronic Clinical Quality Measure Logic and Implementation Guidance Version 1.12 and the Quality Data Model, Version 4.2 and Version 4.3, the "Patient Characteristic Expired" data element is fixed to SNOMED-CT code 41909909 (Dead) and therefore cannot be further qualified with a value set.

S.10. **Stratification Information** *(Provide all information required to stratify the measure results, if necessary, including the stratification variables, definitions, specific data collection items/responses, code/value sets, and the risk-model covariates and coefficients for the clinically-adjusted version of the measure when appropriate – Note: lists of individual codes with descriptors that exceed 1 page should be provided in an Excel or csv file in required format with at S.2b.)*
Not applicable

S.11. **Risk Adjustment Type** (Select type. Provide specifications for risk stratification in measure testing attachment)
No risk adjustment or risk stratification
If other:

S.12. **Type of score:**
Rate/proportion
If other:

S.13. **Interpretation of Score** *(Classifies interpretation of score according to whether better quality is associated with a higher score, a lower score, a score falling within a defined interval, or a passing score)*
Better quality = Higher score

S.14. **Calculation Algorithm/Measure Logic** (*Diagram or describe the calculation of the measure score as an ordered sequence of steps including identifying the target population; exclusions; cases meeting the target process, condition, event, or outcome; time period for data, aggregating data; risk adjustment; etc.)*
1. Identify the individuals who satisfy all specific criteria for inclusion in the denominator: 1.) diagnosed with HIV during the first 3 months of the 24-month measurement period or prior to the 24-month measurement period; 2.) did not have a date of death during the 24-month measurement period; and 3.) had at least one medical visit in the first 6 months of the 24-month measurement period. The individuals who met these three criteria are the denominator population.
2. Identify the individuals from the denominator population who meet the criterion for inclusion in the numerator: must have had at least one medical visit in each 6-month period of the 24-month measurement period with a minimum of 60 days between first medical visit in the prior 6-month period and the last medical visit in the subsequent 6-month period.
3. Calculate the rate by dividing the numerator population by the denominator population and multiply by 100.

S.15. **Sampling** *(If measure is based on a sample, provide instructions for obtaining the sample and guidance on minimum sample size.)*
IF a PRO-PM, identify whether (and how) proxy responses are allowed.
Not applicable; not based on a sample.

S.16. **Survey/Patient-reported data** *(If measure is based on a survey or instrument, provide instructions for data collection and guidance on minimum response rate.)*
IF a PRO-PM, specify calculation of response rates to be reported with performance measure results.
This measure is not based on a survey or instrument.

S.17. **Data Source** *(Check ONLY the sources for which the measure is SPECIFIED AND TESTED).*
If other, please describe in S.18.
Electronic Health Record (Only)

S.18. **Data Source or Collection Instrument** *(Identify the specific data source/data collection instrument (e.g. name of database, clinical registry, collection instrument, etc., and describe how data is collected.)*
IF a PRO-PM, identify the specific PROM(s); and standard methods, modes, and languages of administration.
Data is obtained from structured data fields in electronic health records.

S.19. **Data Source or Collection Instrument** *(available at measure-specific Web page URL identified in S.1 OR in attached appendix at A.1)*

No data collection instrument provided

S.20. **Level of Analysis** *(Check ONLY the levels of analysis for which the measure is SPECIFIED AND TESTED)*
Facility

S.21. **Care Setting** *(Check ONLY the settings for which the measure is SPECIFIED AND TESTED)*
Clinician Office/Clinic
If other:

S.22. **COMPOSITE Performance Measure** - Additional Specifications *(Use this section as needed for aggregation and weighting rules, or calculation of individual performance measures if not individually endorsed.)*
This is not a composite measure.

2. Validity – See attached Measure Testing Submission Form
MVF_testing-636177547706980737.docx,NQFXXX_MedicalVisitFrequency_BonnieTestingAttachment-636177547707136738.zip

2.1 For maintenance of endorsement
Reliability testing: If testing of reliability of the measure score was not presented in prior submission(s), has reliability testing of the measure score been conducted? If yes, please provide results in the Testing attachment. (Do not remove prior testing information – include date of new information in red.)
Yes

2.2 For maintenance of endorsement
Has additional empirical validity testing of the measure score been conducted? If yes, please provide results in the Testing attachment. (Do not remove prior testing information – include date of new information in red.)
No

2.3 For maintenance of endorsement
Risk adjustment: For outcome, resource use, cost, and some process measures, risk-adjustment that includes SDS factors is no longer prohibited during the SDS Trial Period (2015-2016). Please update sections 1.8, 2a2, 2b2, 2b4, and 2b6 in the Testing attachment and S.14 and S.15 in the online submission form in accordance with the requirements for the SDS Trial Period. NOTE: These sections must be updated even if SDS factors are not included in the risk-adjustment strategy. If yes, and your testing attachment does not have the additional questions for the SDS Trial please add these questions to your testing attachment:

What were the patient-level sociodemographic (SDS) variables that were available and analyzed in the data or sample used? For example, patient-reported data (e.g., income, education, language), proxy variables when SDS data are not collected from each patient (e.g. census tract), or patient community characteristics (e.g. percent vacant housing, crime rate).

Describe the conceptual/clinical and statistical methods and criteria used to select patient factors (clinical factors or sociodemographic factors) used in the statistical risk model or for stratification by risk (e.g., potential factors identified in the literature and/or expert panel; regression analysis; statistical significance of p<0.10; correlation of x or higher; patient factors should be present at the start of care)

What were the statistical results of the analyses used to select risk factors?

Describe the analyses and interpretation resulting in the decision to select SDS factors (e.g. prevalence of the factor across measured entities, empirical association with the outcome, contribution of unique variation in the outcome, assessment of between-unit effects and within-unit effects)
No - This measure is not risk-adjusted

NATIONAL QUALITY FORUM—Measure Testing (subcriteria 2a2, 2b2-2b7)

Measure Number (*if previously endorsed*)**:** Click here to enter NQF number
Measure Title: HIV Medical Visit Frequency
Date of Submission: 12/16/2016
Type of Measure:

☐ Outcome (*including PRO-PM*)	☐ Composite – ***STOP – use composite testing form***
☐Intermediate Clinical Outcome	☐ Cost/resource
☒ Process	☐ Efficiency
☐ Structure	

Instructions

- Measures must be tested for all the data sources and levels of analyses that are specified. ***If there is more than one set of data specifications or more than one level of analysis, contact NQF staff*** about how to present all the testing information in one form.
- **For all measures, sections 1, 2a2, 2b2, 2b3, and 2b5 must be completed.**
- **For outcome and resource use measures**, section **2b4** also must be completed.
- If specified for **multiple data sources/sets of specificaitons** (e.g., claims and EHRs), section **2b6** also must be completed.
- Respond to all questions as instructed with answers immediately following the question. All information on testing to demonstrate meeting the subcriteria for reliability (2a2) and validity (2b2-2b6) must be in this form. An appendix for *supplemental* materials may be submitted, but there is no guarantee it will be reviewed.
- If you are unable to check a box, please highlight or shade the box for your response.
- Maximum of 20 pages (*incuding questions/instructions;* minimum font size 11 pt; do not change margins). ***Contact NQF staff if more pages are needed.***
- Contact NQF staff regarding questions. Check for resources at Submitting Standards webpage.
- For information on the most updated guidance on how to address sociodemographic variables and testing in this form refer to the release notes for version 6.6 of the Measure Testing Attachment.

Note: The information provided in this form is intended to aid the Steering Committee and other stakeholders in understanding to what degree the testing results for this measure meet NQF's evaluation criteria for testing.

2a2. Reliability testing [10] demonstrates the measure data elements are repeatable, producing the same results a high proportion of the time when assessed in the same population in the same time period and/or that the measure score is precise. For **PRO-PMs and composite performance measures**, reliability should be demonstrated for the computed performance score.

2b2. Validity testing [11] demonstrates that the measure data elements are correct and/or the measure score correctly reflects the quality of care provided, adequately identifying differences in quality. For **PRO-PMs and composite performance measures**, validity should be demonstrated for the computed performance score.

2b3. Exclusions are supported by the clinical evidence; otherwise, they are supported by evidence of sufficient frequency of occurrence so that results are distorted without the exclusion; [12]

AND

If patient preference (e.g., informed decisionmaking) is a basis for exclusion, there must be evidence that the exclusion impacts performance on the measure; in such cases, the measure must be specified so that the information about patient preference and the effect on the measure is transparent (e.g., numerator category computed separately, denominator exclusion category computed separately). [13]

2b4. For outcome measures and other measures when indicated (e.g., resource use):

- **an evidence-based risk-adjustment strategy** (e.g., risk models, risk stratification) is specified; is based on patient factors (including clinical and sociodemographic factors) that influence the measured outcome and are present at start of care; [14,15] and has demonstrated adequate discrimination and calibration

OR

- rationale/data support no risk adjustment/ stratification.

2b5. Data analysis of computed measure scores demonstrates that methods for scoring and analysis of the specified measure allow for **identification of statistically significant and practically/clinically meaningful [16] differences in performance**;

OR

there is evidence of overall less-than-optimal performance.

2b6. If multiple data sources/methods are specified, there is demonstration they produce comparable results.

2b7. For **eMeasures, composites, and PRO-PMs** (or other measures susceptible to missing data), analyses identify the extent and distribution of missing data (or nonresponse) and demonstrate that performance results are not biased due to systematic missing data (or differences between responders and nonresponders) and how the specified handling of missing data minimizes bias.

Notes

10. Reliability testing applies to both the data elements and computed measure score. Examples of reliability testing for data elements include, but are not limited to: inter-rater/abstractor or intra-rater/abstractor studies; internal consistency for multi-item scales; test-retest for survey items. Reliability testing of the measure score addresses precision of measurement (e.g., signal-to-noise).

11. Validity testing applies to both the data elements and computed measure score. Validity testing of data elements typically analyzes agreement with another authoritative source of the same information. Examples of validity testing of the measure score include, but are not limited to: testing hypotheses that the measures scores indicate quality of care, e.g., measure scores are different for groups known to have differences in quality assessed by another valid quality measure or method; correlation of measure scores with another valid indicator of quality for the specific topic; or relationship to conceptually related measures (e.g., scores on process measures to scores on outcome measures). Face validity of the measure score as a quality indicator may be adequate if accomplished through a systematic and transparent process, by identified experts, and explicitly addresses whether performance scores resulting from the measure as specified can be used to distinguish good from poor quality.

12. Examples of evidence that an exclusion distorts measure results include, but are not limited to: frequency of occurrence, variability of exclusions across providers, and sensitivity analyses with and without the exclusion.

13. Patient preference is not a clinical exception to eligibility and can be influenced by provider interventions.

14. Risk factors that influence outcomes should not be specified as exclusions

15. With large enough sample sizes, small differences that are statistically significant may or may not be practically or clinically meaningful. The substantive question may be, for example, whether a statistically significant difference of one percentage point in the percentage of patients who received smoking cessation counseling (e.g., 74 percent v. 75 percent) is clinically meaningful; or whether a statistically significant difference of $25 in cost for an episode of care (e.g., $5,000 v. $5,025) is practically meaningful. Measures with overall less-than-optimal performance may not demonstrate much variability across providers.

1. DATA/SAMPLE USED FOR ALL TESTING OF THIS MEASURE

Often the same data are used for all aspects of measure testing. In an effort to eliminate duplication, the first five questions apply to all measure testing. If there are differences by aspect of testing,(e.g., reliability vs. validity) be sure to indicate the specific differences in question 1.7.

1.1. What type of data was used for testing? (*Check all the sources of data identified in the measure specifications and data used for testing the measure. Testing must be provided for all the sources of data specified and intended for measure implementation.* ***If different data sources are used for the numerator and denominator, indicate N [numerator] or D [denominator] after the checkbox.***)

Measure Specified to Use Data From: (***must be consistent with data sources entered in S.23***)	**Measure Tested with Data From:**
☐ abstracted from paper record	☐ abstracted from paper record
☐ administrative claims	☐ administrative claims
☐ clinical database/registry	☐ clinical database/registry
☐ abstracted from electronic health record	☐ abstracted from electronic health record
☒ eMeasure (HQMF) implemented in EHRs	☐ eMeasure (HQMF) implemented in EHRs
☒ other: Synthetic Bonnie test patients	☒ other: Synthetic Bonnie test patients

1.2. If an existing dataset was used, identify the specific dataset (*the dataset used for testing must be consistent with the measure specifications for target population and healthcare entities being measured; e.g., Medicare Part A claims, Medicaid claims, other commercial insurance, nursing home MDS, home health OASIS, clinical registry*).

This measure is a legacy electronic clinical quality measure (eCQM) – an NQF endorsed measure that has been respecified into eMeasures and are currently used in federal quality programs. Per NQF modified testing requirements for legacy eCQMs, the measure was tested in the Bonnie testing tool. Bonnie is designed to validate eCQM specifications (HQMF output and value sets) against the measure's expected behavior for user-developed synthetic test patients.

The synthetic patient bundle used to test this measure was designed to simulate clinically relevant, realistic patient scenarios aligned with the target population for this measure. Full details on the Bonnie synthetic patient bundle used to test this measure are included in the Bonnie testing attachment.

For more information on Bonnie, please visit https://bonnie.healthit.gov/.

1.3. What are the dates of the data used in testing? The Bonnie test environment simulates the year 2012 as the measurement period.

1.4. What levels of analysis were tested? (*testing must be provided for all the levels specified and intended for measure implementation, e.g., individual clinician, hospital, health plan*)

Measure Specified to Measure Performance of: (***must be consistent with levels entered in item S.26***)	**Measure Tested at Level of:**
☐ individual clinician	☐ individual clinician
☐ group/practice	☐ group/practice

☒ hospital/facility/agency	☐ hospital/facility/agency
☐ health plan	☐ health plan
☐ other:	☒ other: Synthetic Bonnie test patients

1.5. How many and which measured entities were included in the testing and analysis (by level of analysis and data source)? (*identify the number and descriptive characteristics of measured entities included in the analysis (e.g., size, location, type); if a sample was used, describe how entities were selected for inclusion in the sample*)

Not applicable. The Bonnie synthetic patient bundle was used to test the measure.

1.6. How many and which patients were included in the testing and analysis (by level of analysis and data source)? (*identify the number and descriptive characteristics of patients included in the analysis (e.g., age, sex, race, diagnosis); if a sample was used, describe how patients were selected for inclusion in the sample*)

A test bundle of 64 patients was designed and built within the Bonnie testing tool to evaluate the measure logic. Information documented for each patient within the bundle include:

- Patient name
- Date of birth
- Race
- Ethnicity
- Gender
- Payer

Additional elements contained within the patient profiles as appropriate for testing against expected outcomes include:

- Diagnosis
- Encounters

The patient bundle's demographics were designed to mimic the HIV/AIDS population, specifically drawing from the patient characteristics collected via the Ryan White HIV/AIDS Program Services Report (RSR).

The breakdown of test bundle demographics for the 64 patients included (represented by number of patients/percentage of bundle): males 46/73%; females 17/27%%; American Indian/Alaska Native 2/3 %; Asian 1/2%; Black/African American 30/48%; Native Hawaiian/Pacific Islander 0/0%; White 17/27%; Hispanic/Latino 14/22%; younger than 13 2/3%; 13-17 years old 1/2%; 18-24 years old 2/3%; 25-34 years old 10/16%; 35-44 years old 15/24%; 45-54 years old 21/33%; 55-65 years old 10/16%; older than 65 3/5%. Full details on the Bonnie synthetic patient bundle used to test this measure, including human-readable and QRDA Category 1 format documents for each synthetic patient record, are included in the Bonnie testing attachment.

1.7. If there are differences in the data or sample used for different aspects of testing (e.g., reliability, validity, exclusions, risk adjustment), identify how the data or sample are different for each aspect of testing reported below.

The Bonnie patient test deck was used to satisfy all testing requirements for this measure. The testing results are further supported by testing data for the chart-abstracted version of this measure collected through the

Health Resources and Services Administration HIV/AIDs Bureau's Ryan White HIV/AIDS Program Services Report.

1.8 What were the patient-level sociodemographic (SDS) variables that were available and analyzed in the data or sample used? For example, patient-reported data (e.g., income, education, language), proxy variables when SDS data are not collected from each patient (e.g. census tract), or patient community characteristics (e.g. percent vacant housing, crime rate).

Patient sociodemographic variables considered in the analysis of the chart-abstracted version of this measure were included in the eCQM specifications and modeled in the Bonnie patient bundle. These variables included age, race, ethnicity, gender and payer.

2a2. RELIABILITY TESTING

***Note**: If accuracy/correctness (validity) of data elements was empirically tested, separate reliability testing of data elements is not required – in 2a2.1 check critical data elements; in 2a2.2 enter "see section 2b2 for validity testing of data elements"; and skip 2a2.3 and 2a2.4.*

2a2.1. What level of reliability testing was conducted? (*may be one or both levels*)

☐ **Critical data elements used in the measure** (*e.g., inter-abstractor reliability; data element reliability must address ALL critical data elements*)

☒ **Performance measure score** (e.g., *signal-to-noise analysis*)

2a2.2. For each level checked above, describe the method of reliability testing and what it tests (*describe the steps—do not just name a method; what type of error does it test; what statistical analysis was used*)

Currently, there is no performance data available to test the eCQM. However, the chart-abstracted version of this measure has been in use in national quality reporting programs since as early as 2010.

The most recent reliability analysis of the chart-abstracted measure was confirmed according to the methods outlined in a technical report prepared by J.L. Adams for the National Committee for Quality Assurance titled "The Reliability of Provider Profiling: A Tutorial" (RAND Corporation, TR-653-NCQA, 2009). In this context, reliability represents the ability of a measure to confidently distinguish the performance of one physician from another. As discussed in the report: "Conceptually, it is the ratio of signal to noise. The signal in this case is the proportion of variability in measured performance that can be explained by real differences in performance. There are 3 main drivers of reliability; sample size, differences between physicians, and measurement error."

According to this approach, reliability is estimated with a beta-binomial model. The beta-binomial model is appropriate for measuring the reliability of pass/fail measures such as those proposed here. Reliability scores vary from 0.0 to 1.0, with a score of zero indicating that all variation is attributable to measurement error (noise, or individual accountable entity variance) whereas a reliability of 1.0 implies that all variation is caused by real difference in performance across accountable entities.

2a2.3. For each level of testing checked above, what were the statistical results from reliability testing? (e*.g., percent agreement and kappa for the critical data elements; distribution of reliability statistics from a signal-to-noise analysis*)

Clinic-Specific Reliability for Medical Visit Frequency Measure – Year 2010

Between-clinic variance: 0.0072

Clinic	n	Percent	Reliability

A	2605	76.0	0.99
B	719	78.2	0.97
C	746	68.0	0.96
D	1888	74.1	0.99
E	327	52.3	0.90
F	1320	65.2	0.98
G	436	64.0	0.93
H	1217	50.1	0.97
I	1436	69.6	0.98
J	1742	66.5	0.98
K	444	61.5	0.93
L	3177	67.4	0.99
M	1102	73.8	0.98
Pediatric	528	82.8	0.96

Median 0.97 (Range 0.90-0.99)

2a2.4 What is your interpretation of the results in terms of demonstrating reliability? (i.*e., what do the results mean and what are the norms for the test conducted?*)

Clinic-specific reliability results for the "Medical visit frequency" measure are detailed in the table above. Clinic-specific reliability is consistently greater than 0.9, and thus can be considered to be very good. Clinic-specific reliability was also calculated for 2008 and 2009. Results were consistent with results from 2010 and are not shown here.

2b2. VALIDITY TESTING

2b2.1. What level of validity testing was conducted? (*may be one or both levels*)

☒ **Critical data elements** (*data element validity must address ALL critical data elements*)

☒ **Performance measure score**

☐ **Empirical validity testing**

☒ **Systematic assessment of face validity of <u>performance measure score</u> as an indicator** of quality or resource use (*i.e., is an accurate reflection of performance on quality or resource use and can distinguish good from poor performance*)

2b2.2. For each level of testing checked above, describe the method of validity testing and what it tests (*describe the steps—do not just name a method; what was tested, e.g., accuracy of data elements compared to authoritative source, relationship to another measure as expected; what statistical analysis was used)*

The Bonnie testing environment was used to test the validity of the measure logic and data elements. For each Bonnie synthetic patient, an expected measure result was assigned to reflect the expected outcome of the measure given the specific patient scenario and associated data. The synthetic patients were run against the HQMF output loaded into Bonnie, which produces a measure outcome for each patient and evaluates it against the expected outcome. A patient is considered to pass Bonnie testing when the expected outcome matches the actual outcome, e.g. when a patient is expected to be in the numerator population and the computation of the synthetic patient data against the eCQM logic places the patient in the numerator.

In order to achieve a rigorous, clinically relevant test bundle, synthetic patients were designed following the below principles and test areas:

- Clinical relevance. References cited within the chart abstracted measure specification were used to design clinically relevant, realistic patient profiles for the measure's target population. This approach ensured the eCQM logic maintained alignment with the clinical intent of the chart abstracted measure.
- 100% logic coverage: The resulting bundle of synthetic patients collectively includes all data elements and conditions logic that are specified within the measure logic, including at least one patient evaluating against each measure population pathway. Fully testing the measure logic increases test rigor and mitigates risk of unexpected outcomes.
- Edge case testing. Edge cases refer to those data elements that test the upper or lower boundary of measure logic conditions, e.g. a diagnosis starting on the latest qualifying date or medical visits that were exactly 60 days apart. Edge cases are designed to test each edge that exists within each measure population.
- Negative testing. Negative testing involves use of test cases do not evaluate positively against measure logic, but are otherwise clinically relevant and realistic, e.g. scenarios where an HIV diagnosis was not documented or where medical visits did not take place within the expected six month period. Negative testing further validates measure logic by accurately evaluating patients against expected outcomes and simulating the effect of missing data on measure results.

In addition to Bonnie testing, the measure specifications were reviewed independently by three eCQM experts to confirm the logic was syntactically correct, using appropriate and current versions of the eCQM standards and terminologies, and consistent with the intent of the chart-abstracted measure.

2b2.3. What were the statistical results from validity testing? (*e.g., correlation; t-test*)

Bonnie testing results provide logic coverage and passing rates. The synthetic bundle reached 100% coverage, confirming each logic pathway was tested. The results also showed 100% passing rate, confirming all synthetic patients performed as expected.

Full details on Bonnie testing results are contained in the Bonnie testing attachment. The attachment includes a human-readable (HTML) summary document that lists each patient within the bundle and its passing status against expected measure outcomes. The attachment also includes a summary spreadsheet for the synthetic patient bundle which lists each patient, associated demographics, expected and actual measure population outcomes, and which portions or each measure population logic the patient meets expectations for.

2b2.4. What is your interpretation of the results in terms of demonstrating validity? (i.*e., what do the results mean and what are the norms for the test conducted?*)

The results of measure logic testing through use of Bonnie provided confidence in the measure logic accurately representing the clinical intent and alignment with the chart abstracted measure.

2b3. EXCLUSIONS ANALYSIS (FOR MEASURS WITH EXCLUSIONS --- gap in visits and medical visit frequency)
NA ☐ no exclusions — *skip to section 2b4*

2b3.1. Describe the method of testing exclusions and what it tests (*describe the steps—do not just name a method; what was tested, e.g., whether exclusions affect overall performance scores; what statistical analysis was used*)

This measure has one exclusion – patient death during the measurement period. The exclusion was tested similarly to other criteria using synthetic patients in Bonnie. When the exclusion element was present, the patients were correctly excluded from the measure. In the absence of the exclusion element, cases were not excluded from the measure.

It is important to note that patient mortality has reduced dramatically over the years primarily in relation ot the development and dissemination of HIV antiretroviral therapy. Thus, we do not anticipate that a significant number of patients would be excluded from the measure.

2b3.2. What were the statistical results from testing exclusions? (*include overall number and percentage of individuals excluded, frequency distribution of exclusions across measured entities, and impact on performance measure scores*)

Exclusions were tested using Bonnie. See response to question 2b.3.1 above.

2b3.3. What is your interpretation of the results in terms of demonstrating that exclusions are needed to prevent unfair distortion of performance results? (*i.e., the value outweighs the burden of increased data collection and analysis. Note: **If patient preference is an exclusion**, the measure must be specified so that the effect on the performance score is transparent, e.g., scores with and without exclusion*)

Exclusions were tested using Bonnie. See response to question 2b.3.1 above.

2b4. RISK ADJUSTMENT/STRATIFICATION FOR OUTCOME OR RESOURCE USE MEASURES
If not an intermediate or health outcome, or PRO-PM, or resource use measure, skip to section 2b5.

2b4.1. What method of controlling for differences in case mix is used?
☒ **No risk adjustment or stratification**
☐ **Statistical risk model with risk factors**
☐ **Stratification by risk categories**
☐ **Other,**

2b4.1.1 If using a statistical risk model, provide detailed risk model specifications, including the risk model method, risk factors, coefficients, equations, codes with descriptors, and definitions.

Not applicable.

2b4.2. If an outcome or resource use component measure is not risk adjusted or stratified, provide rationale and analyses to demonstrate that controlling for differences in patient characteristics (case mix) is not needed to achieve fair comparisons across measured entities.

Not applicable.

2b4.3. Describe the conceptual/clinical and statistical methods and criteria used to select patient factors (clinical factors or sociodemographic factors) used in the statistical risk model or for stratification by risk (*e.g., potential factors identified in the literature and/or expert panel; regression analysis; statistical significance of p<0.10; correlation of x or higher; patient factors should be present at the start of care*)

Not applicable.

2b4.4a. What were the statistical results of the analyses used to select risk factors? Not applicable.

2b4.4b. Describe the analyses and interpretation resulting in the decision to select SDS factors (e.g. prevalence of the factor across measured entities, empirical association with the outcome, contribution of unique variation in the outcome, assessment of between-unit effects and within-unit effects)

Not applicable.

2b4.5. Describe the method of testing/analysis used to develop and validate the adequacy of the statistical model or stratification approach (*describe the steps—do not just name a method; what statistical analysis was used*)

Provide the statistical results from testing the approach to controlling for differences in patient characteristics (case mix) below.

Not applicable.

If stratified, skip to 2b4.9

2b4.6. Statistical Risk Model Discrimination Statistics (*e.g., c-statistic, R-squared*)**:** Not applicable.

2b4.7. Statistical Risk Model Calibration Statistics (*e.g., Hosmer-Lemeshow statistic*): Not applicable.

2b4.8. Statistical Risk Model Calibration – Risk decile plots or calibration curves: Not applicable.

2b4.9. Results of Risk Stratification Analysis: Not applicable.

2b4.10. What is your interpretation of the results in terms of demonstrating adequacy of controlling for differences in patient characteristics (case mix)? (i.*e., what do the results mean and what are the norms for the test conducted*)

Not applicable.

2b4.11. Optional Additional Testing for Risk Adjustment (*not required, but would provide additional support of adequacy of risk model, e.g., testing of risk model in another data set; sensitivity analysis for missing data; other methods that were assessed*)

Not applicable.

2b5. IDENTIFICATION OF STATISTICALLY SIGNIFICANT & MEANINGFUL DIFFERENCES IN PERFORMANCE

2b5.1. Describe the method for determining if statistically significant and clinically/practically meaningful differences in performance measure scores among the measured entities can be identified (*describe the steps—do not just name a method; what statistical analysis was used? Do not just repeat the information provided related to performance gap in 1b)*

The chart-abstracted version of this measure has been in use since 2010. To examine meaningful differences in performance, we examined the distribution of the proportion of patients with achieving medical visit frequency across providers, by year. Performance scores were broken into the percentiles to better characterize the gaps that remain across providers. Moreover, performance scores were examined with respect to National HIV/AIDS Strategy 2020 Indicator 5: Increase the percentage of persons with diagnosed HIV infection who are retained in HIV medical care to at least 90 percent. (The National HIV/AIDS Strategy 2020 retention indicator definition is different, yet provides a benchmark.)

2b5.2. What were the statistical results from testing the ability to identify statistically significant and/or clinically/practically meaningful differences in performance measure scores across measured entities? (e.g., *number and percentage of entities with scores that were statistically significantly different from mean or some benchmark, different from expected; how was meaningful difference defined*)

	2007-2008	2008-2009	2009-2010	2014-2015
Minimum	47.1%	42.5%	50.1%	55.1%
Maximum	86.1%	83.1%	82.8%	83.8%
Mean	66.7%	67.73%	68.9%	72.6%
25th percentile	59.7%	59.9%	63.4%	68.2%
50th percentile	70.6%	66.2%	67.7%	70.9%
75th percentile	78.2%	75.5%	74.6%	79.5%

2b5.3. What is your interpretation of the results in terms of demonstrating the ability to identify statistically significant and/or clinically/practically meaningful differences in performance across measured entities? (i.*e., what do the results mean in terms of statistical and meaningful differences?*)

The table above demonstrates meaningful variability across providers, allowing for the identification of meaningful differences across sites. Specifically, the measure is able to detect providers with better or worse than median performance scores. Focusing on the 2014-2015 data, the 25th percentile is 68.2% and the 75th percentile is 79.5%, which is more than 10 points higher than the 25th percentile. Further there is an even greater spread between the minimum and maximum percentages. While the gap appears to be narrowing over time, a meaningful difference of remains, demonstrating the value of the measure in identifying sites based on poor performance relative to the top performers.

2b6. COMPARABILITY OF PERFORMANCE SCORES WHEN MORE THAN ONE SET OF SPECIFICATIONS

If only one set of specifications, this section can be skipped.

Note: *This item is directed to measures that are risk-adjusted (with or without SDS factors)* ***OR*** *to measures with more than one set of specifications/instructions (e.g., one set of specifications for how to identify and compute the measure from medical record abstraction and a different set of specifications for claims or eMeasures). It does not apply to measures that use more than one source of data in one set of specifications/instructions (e.g., claims data to identify the denominator and medical record abstraction for the numerator).* ***Comparability is not required when comparing performance scores with and without SDS factors in the risk adjustment model. However, if comparability is not demonstrated for measures with more than one set of specifications/instructions, the different specifications (e.g., for medical records vs. claims) should be submitted as separate measures.***

2b6.1. Describe the method of testing conducted to compare performance scores for the same entities across the different data sources/specifications (*describe the steps—do not just name a method; what statistical analysis was used*)

Not applicable.

2b6.2. What were the statistical results from testing comparability of performance scores for the same entities when using different data sources/specifications? (*e.g., correlation, rank order*)

Not applicable.

2b6.3. What is your interpretation of the results in terms of the differences in performance measure scores for the same entities across the different data sources/specifications? (i.*e., what do the results mean and what are the norms for the test conducted*)

Not applicable.

2b7. MISSING DATA ANALYSIS AND MINIMIZING BIAS

2b7.1. Describe the method of testing conducted to identify the extent and distribution of missing data (or nonresponse) and demonstrate that performance results are not biased due to systematic missing data (or differences between responders and nonresponders) and how the specified handling of missing data minimizes bias (*describe the steps—do not just name a method; what statistical analysis was used*)

The HQMF standard specifies that if data are unknown or missing, they shall fail the criterion. This constraint embodies the notion that absence of evidence is evidence of absence, i.e. data not present in a structured field from which the measure draws will not be considered for measure calculation. In certain cases, missing data may have no impact on the measure outcome for a given patient. For example, a data element used in a series of OR statements will not impact the measure outcome if another data element in the OR statement is present and meets all other defined constraints.

2b7.2. What is the overall frequency of missing data, the distribution of missing data across providers, and the results from testing related to missing data? (*e.g., results of sensitivity analysis of the effect of various rules for missing data/nonresponse; if no empirical sensitivity analysis, identify the approaches for handling missing data that were considered and pros and cons of each*)

The Bonnie synthetic patient bundle includes scenarios for missing data elements, which are a form of negative testing. All Bonnie synthetic patients with missing data performed according to the HQMF standard specification and as expected.

2b7.3. What is your interpretation of the results in terms of demonstrating that performance results are not biased due to systematic missing data (or differences between responders and nonresponders) and how the specified handling of missing data minimizes bias**?** (i.*e., what do the results mean in terms of supporting the selected approach for missing data and what are the norms for the test conducted; if no empirical analysis, provide rationale for the selected approach for missing data*)

Please see response for question 2b7.1 above.

3. Feasibility

Extent to which the specifications including measure logic, require data that are readily available or could be captured without undue burden and can be implemented for performance measurement.

3a. Byproduct of Care Processes

For clinical measures, the required data elements are routinely generated and used during care delivery (e.g., blood pressure, lab test, diagnosis, medication order).

3a.1. **Data Elements Generated as Byproduct of Care Processes.**
Generated or collected by and used by healthcare personnel during the provision of care (e.g., blood pressure, lab value, diagnosis, depression score)
If other:

3b. Electronic Sources

The required data elements are available in electronic health records or other electronic sources. If the required data are not in electronic health records or existing electronic sources, a credible, near-term path to electronic collection is specified.

3b.1. **To what extent are the specified data elements available electronically in defined fields** (*i.e., data elements that are needed to compute the performance measure score are in defined, computer-readable fields*) Update this field for **maintenance of endorsement**.
ALL data elements are in defined fields in electronic health records (EHRs)

3b.2. **If ALL the data elements needed to compute the performance measure score are not from electronic sources, specify a credible, near-term path to electronic capture, OR provide a rationale for using other than electronic sources.** For **maintenance of endorsement**, if this measure is not an eMeasure (eCQM), please describe any efforts to develop an eMeasure (eCQM).
Not applicable.

3b.3. **If this is an eMeasure, provide a summary of the feasibility assessment in an attached file or make available at a measure-specific URL. Please also complete and attach the NQF Feasibility Score Card.**
Attachment: NQFXXX_MedicalVisitFrequency_Feasibility_Scorecard_v1.0-636177547712128770.xlsx

3c. Data Collection Strategy

Demonstration that the data collection strategy (e.g., source, timing, frequency, sampling, patient confidentiality, costs associated with fees/licensing of proprietary measures) can be implemented (e.g., already in operational use, or testing demonstrates that it is ready to put into operational use). For eMeasures, a feasibility assessment addresses the data elements and measure logic and demonstrates the eMeasure can be implemented or feasibility concerns can be adequately addressed.

3c.1. **Required for maintenance of endorsement. Describe difficulties (as a result of testing and/or operational use of the measure) regarding data collection, availability of data, missing data, timing and frequency of data collection, sampling, patient confidentiality, time and cost of data collection, other feasibility/implementation issues.**
IF a PRO-PM, consider implications for both individuals providing PRO data (patients, service recipients, respondents) and those whose performance is being measured.
Not applicable.

3c.2. **Describe any fees, licensing, or other requirements to use any aspect of the measure as specified** *(e.g., value/code set, risk model, programming code, algorithm)*.
The measure specifications contain limited proprietary codes for convenience. Users of CPT(R) should obtain all necessary licenses from the owners of these code sets.
The use of SNOMED Clinical Terms(R) requires a Unified Medical Language System (UMLS) license. These licenses are freely available, from the National Library of Medicine.

4. Usability and Use

Extent to which potential audiences (e.g., consumers, purchasers, providers, policy makers) are using or could use performance results for both accountability and performance improvement to achieve the goal of high-quality, efficient healthcare for individuals or populations.

4a. Accountability and Transparency

Performance results are used in at least one accountability application within three years after initial endorsement and are publicly reported within six years after initial endorsement (or the data on performance results are available). If not in use at the time of initial endorsement, then a credible plan for implementation within the specified timeframes is provided.

4.1. Current and Planned Use

NQF-endorsed measures are expected to be used in at least one accountability application within 3 years and publicly reported within 6 years of initial endorsement in addition to performance improvement.

Specific Plan for Use	Current Use (for current use provide URL)
Public Reporting Public Health/Disease Surveillance Payment Program Quality Improvement (external benchmarking to organizations) Quality Improvement (Internal to the specific organization)	

4a.1. For each CURRENT use, checked above (update for maintenance of endorsement), provide:

- Name of program and sponsor
- Purpose
- Geographic area and number and percentage of accountable entities and patients included
- Level of measurement and setting

4a.2. If not currently publicly reported OR used in at least one other accountability application (e.g., payment program, certification, licensing) what are the reasons? (*e.g., Do policies or actions of the developer/steward or accountable entities restrict access to performance results or impede implementation?*)

N/A

4a.3. If not currently publicly reported OR used in at least one other accountability application, provide a credible plan for implementation within the expected timeframes -- any accountability application within 3 years and publicly reported within 6 years of initial endorsement. (*Credible plan includes the specific program, purpose, intended audience, and timeline for implementing the measure within the specified timeframes. A plan for accountability applications addresses mechanisms for data aggregation and reporting.*)

N/A

Improvement

Progress toward achieving the goal of high-quality, efficient healthcare for individuals or populations is demonstrated. If not in use for performance improvement at the time of initial endorsement, then a credible rationale describes how the performance results could be used to further the goal of high-quality, efficient healthcare for individuals or populations.

4b. Refer to data provided in 1b but do not repeat here. Discuss any progress on improvement (trends in performance results, number and percentage of people receiving high-quality healthcare; Geographic area and number and percentage of accountable entities and patients included.)

If no improvement was demonstrated, what are the reasons? If not in use for performance improvement at the time of initial endorsement, provide a credible rationale that describes how the performance results could be used to further the goal of high-quality, efficient healthcare for individuals or populations.

Medical visit frequency is a measurement of retention in HIV medical care and specifically geared towards longer term retention. Performance has been improving over time. Based on the HIVRN data, representing over 15,000 patients annually, performance has increased from 66.7% in 2007-2008 to 72.6% in 2014-2015. Many, but not all of the demographic groups and subpopulations have seen improvements in the medical visit frequency measure.

4c. Unintended Consequences

The benefits of the performance measure in facilitating progress toward achieving high-quality, efficient healthcare for individuals or populations outweigh evidence of unintended negative consequences to individuals or populations (if such evidence exists).

4c.1. **Please explain any unexpected findings (positive or negative) during implementation of this measure including unintended impacts on patients.**
The adoption and use of this measure has continued to spread since the initial development of this measure. This measure has been adopted by Centers for Medicare and Medicaid measurement programs, Department of Health and Human Service Secretary as a one of the core HIV indicators, countless outpatient/ambulatory care settings, and health departments. National learning collaborates have used this measure to focus the improvement efforts of grant recipients and subrecipients. Additionally, retention is the final and goal of the five stages of the HIV care continuum.

4c.2. **Please explain any unexpected benefits from implementation of this measure.**
N/A

4d1.1. **Describe how performance results, data, and assistance with interpretation have been provided to those being measured or other users during development or implementation.**
How many and which types of measured entities and/or others were included? If only a sample of measured entities were included, describe the full population and how the sample was selected.
This measure has been used in national quality improvement campaigns, learning collaborative, and learning exchange. Participants commit to using this measure, reporting performance scores and disparity stratifications, and developing quality improvement projects based on this measure. Performance scores and disparity stratification data are shared with participants in order to benchmark performance.

HRSA is releasing a quality module where grant recipients can voluntarily report numerator, denominator, and performance scores for a portfolio of measures. Grant recipients will be able to benchmark their performance based on a number of patient demographic and organizational factors. This measure will be included in the measure portfolio.

4d1.2. **Describe the process(es) involved, including when/how often results were provided, what data were provided, what educational/explanatory efforts were made, etc.**
For the national quality improvement campaign, data were collected and aggregated from participants across the United States every other month. Reports were developed and released based on a number of organizational factors (type of funding, location, etc.). Reports included data tables and spark lines and available on a public website and presented in public, national webinars. Similar efforts were employed for the learning collaborative and learning exchange.

4d2.1. **Summarize the feedback on measure performance and implementation from the measured entities and others described in 4d.1.**
Describe how feedback was obtained.
Antidotal feedback has been received regarding the use of performance measures, collection of data, and dissemination of reports from participating Ryan White HIV/AIDS Program grant recipients. All of the feedback was positive, supportive, and encouraged further stratification, dissemination methods, and graphical presentations. Feedback was incorporated in dissemination efforts based on feasibility and resource availability.

4d2.2. **Summarize the feedback obtained from those being measured.**
See 4d2.2

4d2.3. **Summarize the feedback obtained from other users**
Antidotal feedback encouraged continual alignment of measure details (e.g. numerator, denominator, exclusions, etc.) across performance measures and measure programs in order to reduce burden.

4d.3. **Describe how the feedback described in 4d.2 has been considered when developing or revising the measure specifications or implementation, including whether the measure was modified and why or why not.**
During the initial development of the measure, formal feedback was gathered. The measures were modified during the development phase and have not been modified since. A concerted effort was made to develop a measure that would likely stand the test of time from a scientific, clinical, and patient perspective. On an annual basis, the measure is review for clinical relevance, change in scientific acceptability, and consistency with guidelines. This measure has not been modified as a result of

the annual reviews. Additionally, this measure is used by a number of measurement programs and strategies. Each of those programs require a separate annual review. No modifications have been made for those programs.

If a measure meets the above criteria and there are endorsed or new related measures (either the same measure focus or the same target population) or competing measures (both the same measure focus and the same target population), the measures are compared to address harmonization and/or selection of the best measure.

5. Comparison to Related or Competing Measures

If a measure meets the above criteria and there are endorsed or new related measures (either the same measure focus or the same target population) or competing measures (both the same measure focus and the same target population), the measures are compared to address harmonization and/or selection of the best measure.

5. Relation to Other NQF-endorsed Measures
Are there related measures (conceptually, either same measure focus or target population) or competing measures (conceptually both the same measure focus and same target population)? If yes, list the NQF # and title of all related and/or competing measures.
Yes

5.1a. **List of related or competing measures (selected from NQF-endorsed measures)**
0403 : HIV/AIDS: Medical Visit

5.1b. **If related or competing measures are not NQF endorsed please indicate measure title and steward.**
0405 HIV/AIDS: Pneumocystis Jiroveci Pneumonia (PCP) Prophylaxis
0409 HIV/AIDS: Sexually Transmitted Disease Screening for Chlamydia, Gonorrhea, and Syphilis
2080 Gap in HIV Medical Visits
2082 HIV viral suppression
2083 Prescription of HIV Antiretroviral Therapy
3211 Prescription of HIV Antiretroviral Therapy
3210 HIV viral suppression
3010 HIV Medical Visit Frequency

5a. Harmonization of Related Measures
The measure specifications are harmonized with related measures;
OR
The differences in specifications are justified

5a.1. **If this measure conceptually addresses EITHER the same measure focus OR the same target population as NQF-endorsed measure(s):**
Are the measure specifications harmonized to the extent possible?
Yes

5a.2. **If the measure specifications are not completely harmonized, identify the differences, rationale, and impact on interpretability and data collection burden.**
Harmonized with all measures except 405 and 409. Plans to harmonize with 405 and 409.

5b. Competing Measures
The measure is superior to competing measures (e.g., is a more valid or efficient way to measure);
OR
Multiple measures are justified.

5b.1. **If this measure conceptually addresses both the same measure focus and the same target population as NQF-endorsed measure(s):**
Describe why this measure is superior to competing measures (e.g., a more valid or efficient way to measure quality); OR provide a rationale for the additive value of endorsing an additional measure. (Provide analyses when possible.)

This measure does not have a competing measure.

Appendix

A.1 Supplemental materials may be provided in an appendix. All supplemental materials (such as data collection instrument or methodology reports) should be organized in one file with a table of contents or bookmarks. If material pertains to a specific submission form number, that should be indicated. Requested information should be provided in the submission form and required attachments. There is no guarantee that supplemental materials will be reviewed.

Attachment:

Contact Information

Co.1 **Measure Steward (Intellectual Property Owner):** Health Resources and Services Administration - HIV/AIDS Bureau
Co.2 **Point of Contact:** Marlene, Matosky, mmatosky@hrsa.gov, 301-443-0798-
Co.3 **Measure Developer if different from Measure Steward:** Health Resources and Services Administration - HIV/AIDS Bureau
Co.4 **Point of Contact:** Marlene, Matosky, mmatosky@hrsa.gov, 301-443-0798-

Additional Information

Ad.1 **Workgroup/Expert Panel involved in measure development**
Provide a list of sponsoring organizations and workgroup/panel members' names and organizations. Describe the members' role in measure development.
The work group members determined the measure concepts, identified the data elements, voted on the final measures, and assessed the face validity of the measures.
Bruce Agins, NYS DOH AIDS Institute, New York, NY
Judy Bradford, Fenway Community Health, Boston, MA
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Laura Cheever, HRSA HAB, Rockville, MD
Nikki Cockern, Wayne State University, Detroit, MI
Chinazo Cunningham, Montefiore Medical Center, New York, NY
William Cunningham, UCLA, Los Angeles, CA
Julie Dombrowski, University of Washington, Seattle, WA
Edward Gardner, Denver Health, Denver, CO
Elvin Geng, UCSF, San Francisco, CA
Thomas Giordano, Baylor College of Medicine, Houston, TX
Barb Gripshover, Cleveland ACT UP, Cleveland, OH
Deborah Konkle Parker, University of Mississippi , Jackson, MS
Tim Long, Alliance Chicago, Chicago, IL
Cheryl Lynn-Besch, Louisiana State University, New Orleans, LA
Julio Marrero, COSSMA, San Juan, PR
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Michael Mugavero, University of Alabama, Birmingham, AL
Sylvia Naar King, Wayne State University, Detroit, MI
Josiah Rich, Brown University, Providence, RI
Allan Rodriguez, Miami University, Miami, FL
Amy Sitapati, UCSD, San Diego, CA
Avnish Tripathi, University of South Carolina, Charleston, SC
Gregory Winstead, Christian Community Health Center, Chicago, IL

Measure Developer/Steward Updates and Ongoing Maintenance
Ad.2 **Year the measure was first released:** 2011
Ad.3 **Month and Year of most recent revision:** 05, 2016

Ad.4 **What is your frequency for review/update of this measure?** Annual Ad.5 **When is the next scheduled review/update for this measure?** 05, 2017
Ad.6 **Copyright statement:** None Ad.7 **Disclaimers:** None
Ad.8 **Additional Information/Comments:** None