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Performance Measure: HIV Viral Load Suppression  
National Quality Forum #: 2082

**Description:** Percentage of patients, regardless of age, with a diagnosis of HIV with a HIV viral load less than 200 copies/ml at last viral load test during the measurement year.

**Numerator:** Number of patients in the denominator with a HIV viral load less than 200 copies/ml at last HIV viral load test during the measurement year

**Denominator:** Number of patients, regardless of age, with a diagnosis of HIV with at least one medical visit in the measurement year

**Patient Exclusions:** None

**Data Elements:**
- Does the patient, regardless of age, have a diagnosis of HIV? (Y/N)  
  - a. If yes, did the patient have at least one medical visit during the measurement year? (Y/N)  
    - i. If yes, did the patient have a HIV viral load test with a result <200 copies/mL at the last test? (Y/N)

**Comparison Data:**
- [HIV Research Network](https://www.hivresearchnetwork.org)  
  Percentage of patients with a HIV viral load less than or equal to 400 copies/ml at the first test during the measurement year. Please refer to the HIVRN website for data.

**U.S. Department of Health and Human Services Guidelines:**
- **Adult guidelines:** “The guidelines and the AIDS Clinical Trials Group (ACTG) now define virologic failure as a confirmed viral load >200 copies/mL- a threshold that eliminates most cases of apparent viremia caused by viral load blips or assay variability (see Virologic Failure and Suboptimal Immunologic Response) Guidelines for the Use of Antiretroviral Agents in Adults and Adolescents with HIV”

  “Individuals who are adherent to their ARV regimen and do not harbor resistance mutations to the component drugs can generally achieve suppression 8 to 24 weeks after ART initiation; rarely, in some patients it may take longer.”

  - ^1

- **Pediatric guidelines:** “Based on accumulated experience with currently available assays, viral suppression is currently defined as a plasma viral load below the detection limit of the assay used (generally <20 to 75 copies/mL).”

  - ^2
Use in Other Federal Programs:

- Seeking inclusion in the following Centers for Medicare and Medicaid Services quality, reporting and payment programs: Medicare and Medicaid EHR Incentive Program for Eligible Professionals, Medicare Physician Quality Reporting System, Medicare Shared Savings, Physician Compare, Physician Feedback/Quality and resource Use Reports, Physician Value-Based Payment Modifier (search for each program at online.) Accessed December 2016.
- U.S. Department of Health and Human Services HIV measures: Secretary Sebelius approves indicators for monitoring HHS-funded HIV services

References/Notes:

Performance Measure: Prescription of HIV Antiretroviral Therapy
National Quality Forum #: 2083

Description: Percentage of patients, regardless of age, with a diagnosis of HIV prescribed antiretroviral therapy for the treatment of HIV infection during the measurement year.

Numerator: Number of patients from the denominator.

Denominator: Number of patients from the denominator prescribed HIV antiretroviral therapy during the measurement year.

Patient Exclusions: None.

Data Elements: Does the patient, regardless of age, have a diagnosis of HIV? (Y/N)
   a. If yes, did the patient have at least one medical visit during the measurement year? (Y/N)
      i. If yes, was the patient prescribed HIV antiretroviral therapy during the measurement year? (Y/N)

Comparison Data: HIV Research Network: Please refer to the HIV Research Network Percentage of patients on highly active HIV antiretroviral therapy regimen for at least one day during calendar year.

U.S. Department of Health and Human Services Guidelines:

Adult guidelines: "Antiretroviral therapy (ART) is recommended for all HIV-infected individuals to reduce the risk of disease progression. The strength and evidence for this recommendation vary by pretreatment CD4 cell count: CD4 count <350 cells/mm³ (AI); CD4 count 350–500 cells/mm³ (AII); CD4 count >500 cells/mm³ (BIII). ART also is recommended for HIV-infected individuals for the prevention of transmission of HIV. The strength and evidence for this recommendation vary by transmission risks: perinatal transmission (AI); heterosexual transmission (AI); other transmission risk groups (AIII)."

Pediatric guidelines: "Antiretroviral therapy (ART) should be initiated in all children with AIDS or significant symptoms (Clinical Category C or most Clinical Category B conditions) (AI*).
   • ART should be initiated in HIV-infected infants <12 months of age regardless of clinical status, CD4 percentage or viral load (AI for infants <12 weeks of age and AII for infants ≥12 weeks to 12 months)."
• ART should be initiated in HIV-infected children ≥1 year who are asymptomatic or have mild symptoms with the following CD4 values:
  o Age 1 to <3 years
    ▪ with CD4 T lymphocyte (CD4 cell) count <1000 cells/mm³ or CD4 percentage <25% (AII)
  o Age 3 to <5 years
    ▪ with CD4 cell count <750 cells/mm³ or CD4 percentage <25% (AII)
  o Age ≥5 years
    ▪ with CD4 cell count <350 cells/mm³ (AI*)
    ▪ with CD4 cell count 350–500 cells/mm³ (BII*)

• ART should be considered for HIV-infected children ≥1 year who are asymptomatic or have mild symptoms with the following CD4 values:
  o Age 1 to <3 years
    ▪ with CD4 cell count ≥1000 cells/mm³ or CD4 percentage ≥25% (BIII)
  o Age 3 to <5 years
    ▪ with CD4 cell count ≥750 cells/mm³ or CD4 percentage ≥25% (BIII)
  o Age ≥5 years
    ▪ with CD4 cell count >500 cells/mm³ (BIII)

In children with lower-strength (B level) recommendations for treatment, plasma HIV RNA levels >100,000 copies/mL provide stronger evidence for initiation of treatment (BII).”

Use in Other Federal Programs:
• Seeking inclusion in the following Centers for Medicare and Medicaid Services quality, reporting and payment programs: Medicare and Medicaid EHR Incentive Program for Eligible Professionals, Medicare Physician Quality Reporting System, Medicare Shared Savings, Physician Compare, Physician Feedback/Quality and resource Use Reports, Physician Value-Based Payment Modifier (search for each program online). Accessed June 2019.
• U.S. Department of Health and Human Services HIV measures: Secretary Sebelius approves indicators for monitoring HHS-funded HIV services

References/Notes:
1 HIV antiretroviral therapy is described as the prescription of at least one U.S. Food and Drug Administration approve HIV antiretroviral medication.
Performance Measure: HIV Medical Visit Frequency
National Quality Forum #: 2079

Description: Percentage of patients, regardless of age, with a diagnosis of HIV who had at least one medical visit in each 6-month period of the 24-month measurement period with a minimum of 60 days between medical visits.

Numerator: Number of patients in the denominator who 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 subsequent 6-month period.

Denominator: Number of patients, regardless of age, with a diagnosis of HIV with at least one medical visit in the first 6-months of the 24-month measurement period

Patient Exclusions: Patients who died at any time during the 24-month measurement period

Data Elements: Does the patient, regardless of age, have a diagnosis of HIV? (Y/N)
  a. If yes, did the patient have at least one medical visit in the first 6 months of the 24-month measurement period? (Y/N)
    i. If yes, did the patient have at least one medical visit in the second 6-month period of the 24-month measurement period? AND was the patient's last visit in the second 6-month period 60 days or more from the 1st visit in the first 6-month period? (Y/N)
      1. Did the patient have at least one medical visit in the third 6-month period of the 24-month measurement period? AND was the patient's last visit in the third 6-month period 60 days or more from the 1st visit in the second 6-month period? (Y/N)
        a. If yes, did the patient have at least one medical visit in the fourth 6-month period of the 24-month measurement period? AND was the patient's last visit in the fourth 6-month period 60 days or more from the 1st visit in the third 6-month period? (Y/N)

Comparison Data: None

U.S. Department of Health and Human Services Guidelines:

Adult guidelines: 1 "Several laboratory tests are important for the initial evaluation of patients with HIV upon entry into care, and before and after initiation or modification of antiretroviral therapy (ART) to assess the virologic and immunologic efficacy of ART and to monitor for laboratory abnormalities that may be associated with antiretroviral (ARV) drugs. Table 3 outlines the
Panel on Antiretroviral Guidelines for Adults and Adolescents (the Panel’s) recommendation on the frequency of testing. As noted in the table, some tests may be repeated more frequently if clinically indicated.”

**Pediatric guidelines:**2 “Frequent patient visits and intensive follow-up during the initial months after a new antiretroviral (ARV) regimen is started are necessary to support and educate the family... “Within 1 to 2 weeks of initiating therapy, children should be evaluated either in person or by phone to identify clinical AEs and to support adherence. Many clinicians plan additional contacts (in person, by telephone, or via email) with children and caregivers to support adherence during the first few weeks of therapy.”

“After the initial phase of ART initiation, regimen adherence, effectiveness (CD4 cell count and plasma viral load), and toxicities (history, physical and laboratory testing) should be assessed every 3 to 4 months in children receiving ART. Some experts monitor CD4 cell count less frequently (e.g., every 6 to 12 months) in children and adolescents who are adherent to therapy and have CD4 cell count values well above the threshold for OI risk, sustained viral suppression, and stable clinical status for more than 2 to 3 years.”

**Use in Other Federal Programs:**
- Seeking inclusion in the following Centers for Medicare and Medicaid Services quality, reporting and payment programs: Medicare and Medicaid EHR Incentive Program for Eligible Professionals, Medicare Physician Quality Reporting System, Medicare Shared Savings, Physician Compare, Physician Feedback/Quality and resource Use Reports, Physician Value-Based Payment Modifier (search for each program online).
- U.S. Department of Health and Human Services HIV measures: Secretary Sebelius approves indicators for monitoring hhs-funded HIV services

**References/ Notes:**
Performance Measure: Gap in HIV Medical Visits
National Quality Forum #: 2079

Description: Percentage of patients, regardless of age, with a diagnosis of HIV who did not have a medical visit in the last 6 months of the measurement year

Numerator: Number of patients in the denominator who did not have a medical visit in the last 6 months of the measurement year

Denominator: Number of patients, regardless of age with a diagnosis or HIV who had at least one medical visit in the first 6 months of the measurement year

Patient Exclusions: Patients who died at any time during the measurement year

Data Elements:
Does the patient, regardless of age, have a diagnosis of HIV? (Y/N)
   a. If yes, did the patient have at least one medical visit in the first 6 months of the measurement year? (Y/N)
      i. If yes, did the patient have one or more medical visits in the last 6 months of the measurement year?

Comparison Data: None

U.S. Department of Health and Human Services Guidelines:
Adult guidelines: 1 “A number of laboratory tests are important for initial evaluation of HIV-infected patients upon entry into care, during follow-up (if antiretroviral therapy (ART) has not been initiated), and before and after the initiation or modification of therapy to assess virologic and immunologic efficacy of ART and to monitor for laboratory abnormalities that may be associated with antiretroviral (ARV) drugs. Table 3 outlines the Panel’s recommendations for the frequency of testing. As noted in the table, some tests may be repeated more frequently if clinically indicated.”

Pediatric guidelines: 2 “Frequent patient visits and intensive follow-up during the initial months after a new antiretroviral (ARV) regimen is started are necessary to support and educate the family...Thus, it is prudent for clinicians to assess children within 1 to 2 weeks of initiating therapy, either in person or with a phone call, to ensure that medications are being administered properly and evaluate clinical concerns. Many clinicians schedule additional contact (in person or over the telephone) with children and their caregivers during the first few weeks of therapy to support adherence...Thereafter, medication adherence and regimen toxicity and effectiveness should be assessed every 3 to 4 months in children taking ARV drugs. Some experts monitor CD4 cell counts and HIV RNA levels less frequently in children and youth who are adherent to therapy and have sustained viral suppression and stable clinical status for more than 2 to 3 years.”
Use in Other Federal Programs:
Seeking inclusion in the following [Centers for Medicare and Medicaid Services](http://www.cms.gov) quality, reporting and payment programs: Medicare and Medicaid EHR Incentive Program for Eligible Professionals, Medicare Physician Quality Reporting System, Medicare Shared Savings, Physician Compare, Physician Feedback/Quality and resource Use Reports, Physician Value-Based Payment Modifier (search for each program online).

References/ Notes:
Performance Measure: Pneumocystis jiroveci Pneumonia (PCP) Prophylaxis  
National Quality Forum #: 0405

Description: Percentage of patients aged 6 weeks or older with a diagnosis of HIV/AIDS, who were prescribed Pneumocystis jiroveci pneumonia (PCP) prophylaxis

*Use the numerator and denominator that reflect patient population

Numerator:

**Numerator 1:** Patients who were prescribed Pneumocystis jiroveci pneumonia (PCP) prophylaxis within 3 months of CD4 count below 200 cells/mm³

**Numerator 2:** Patients who were prescribed Pneumocystis jiroveci pneumonia (PCP) prophylaxis within 3 months of CD4 count below 500 cells/mm³ or a CD4 percentage below 15%

**Numerator 3:** Patients who were prescribed Pneumocystis jiroveci pneumonia (PCP) prophylaxis at the time of HIV diagnosis

*Aggregate Numerator = The sum of the three numerators

Denominator:

**Denominator 1:** All patients aged 6 years and older with a diagnosis of HIV/AIDS and a CD4 count below 200 cells/mm³, who had at least two visits during the measurement year, with at least 90 days in between each visit;  
And  
**Denominator 2:** All patients aged 1 through 5 years of age with a diagnosis of HIV/AIDS and a CD4 count below 500 cells/mm³ or a CD4 percentage below 15%, who had at least two visits during the measurement year, with at least 90 days in between each visit;  
And  
**Denominator 3:** All patients aged 6 weeks through 12 months with a diagnosis of HIV, who had at least two visits during the measurement year, with at least 90 days in between each visit

*Total Denominator = The sum of the three denominators

Patient Exclusions:

**Denominator 1 Exclusion:** Patient did not receive PCP prophylaxis because there was a CD4 count above 200 cells/mm³ during the three months after a CD4 count below 200 cells/mm³
**Denominator 2 Exclusion:** Patient did not receive PCP prophylaxis because there was a CD4 count above 500 cells/mm³ or CD4 percentage above 15% during the three months after a CD4 count below 500 cells/mm³ or CD4 percentage below 15%

**Data Elements:**

**Numerator/Denominator 1:**
1. Is the patient 6 years or older and have a diagnosis of HIV? (Y/N)
   a. If yes, did the patient have at least two medical visits in the measurement year with at least 90 days between visits? (Y/N)
   i. If yes, did the patient have a CD4 count <200 cells/mm³ within the first 9 months of the measurement year? (Y/N)
      1. If yes, was PCP prophylaxis prescribed within 3 months of CD4<200 cells/mm³? (Y/N)
         a. If no, was the CD4 count repeated within 3 months? (Y/N)
            i. If yes, did CD4 count remain < 200 cells/mm³? (Y/N)
            1. If yes, was PCP prophylaxis prescribed within 3 months of CD4<200 cells/mm³? (Y/N)

**Numerator/Denominator 2:**
1. Is the patient between 1-5 years old and have a diagnosis of HIV? (Y/N)
   a. If yes, did the patient have at least two medical visits in the measurement year with at least 90 days between visits? (Y/N)
   i. If yes, did the patient have a CD4 count <500 cells/mm³ or CD4 percentage < 15% within the first 9 months of the measurement year? (Y/N)
      1. If yes, was PCP prophylaxis prescribed within 3 months of CD4<200 cells/mm³? (Y/N)
         a. If no, was the CD4 count repeated within 3 months? (Y/N)
            i. If yes, did it remain CD4 count <500 cells/mm³ or CD4 percentage < 15%? (Y/N)
            1. If yes, was PCP prophylaxis prescribed within 3 months of CD4 count <500 cells/mm³ or CD4 percentage < 15%? (Y/N)

**Numerator/Denominator 3:**
1. Is the patient between 6 weeks and 12 months old and have a diagnosis of HIV? (Y/N)
   a. If yes, did the patient have at least two medical visits in the measurement year with at least 90 days between visits? (Y/N)
   i. If yes, was PCP prophylaxis prescribed at HIV diagnosis?

***Greater measure specification detail is available including data elements for each value set at [cms.gov: Clinical Quality Measures Basics](https://www.cms.gov) (Measure: CMS 52v7)***
Comparison Data: Patients meeting criteria and prescribed PCP prophylaxis during calendar year. Please refer to HIV Research Network

U.S. Department of Health & Human Services Guidelines:

Adult guidelines: "HIV-infected adults and adolescents, including pregnant women and those on ART, should receive chemoprophylaxis against PCP if they have CD4 counts <200 cells/mm³ (AII). Persons who have a CD4 cell percentage of <14% should also be considered for prophylaxis (BII). Initiation of chemoprophylaxis at CD4 counts between 200 and 250 cells/mm³ also should be considered when starting ART must be delayed and frequent monitoring of CD4 counts, such as every 3 months, is impossible (BII). Patients receiving pyrimethamine-sulfadiazine for treatment or suppression of toxoplasmosis do not require additional prophylaxis for PCP (AII)."

Pediatric guidelines: "Chemoprophylaxis is highly effective in preventing PCP. Prophylaxis is recommended for all HIV-infected children aged ≥ 6 years who have a CD4 T lymphocyte (CD4) counts <200 cells/mm³ or CD4 percentage <15% for children aged 1 to <6 years with CD4 counts <500 cells/mm³ or CD4 percentage <15%, and for all infants aged <12 months regardless of CD4 count or percentage. Infants born to HIV-infected mothers should be considered for prophylaxis beginning at 4–6 weeks of age. HIV-infected infants should be administered prophylaxis until 1 year of age, at which time they should be reassessed on the basis of the age-specific CD4 count or percentage thresholds mentioned above (AII)."

Use in Other Federal Programs:

Medicare and Medicaid EHR Incentive Program for Eligible Professionals Centers for Medicare & Medicaid Services: eCQM Library

References/ Notes:

1 The HIV/AIDS Bureau did not develop this measure. The National Committee on Quality Assurance developed the measure. Measure details available online.


Performance Measure: Annual Retention in Care

National Quality Forum #: None

Description: Percentage of patients, regardless of age, with a diagnosis of HIV who had at least two (2) encounters within the 12-month measurement year.

Numerator: Number of patients in the denominator who had at least two HIV medical care encounters at least 90 days apart within a 12-month measurement year. At least one of the two HIV medical care encounters needs to be a medical visit with a provider with prescribing privileges.

Denominator: Number of patients, regardless of age, with a diagnosis of HIV who had at least one HIV medical encounter within the 12-month measurement year.

An HIV medical care encounter is a medical visit with a provider with prescribing privileges or an HIV viral load test.

Patients Exclusions: Patients who died at any time during the measurement year.

Data Elements: Does the patient, regardless of age, have a diagnosis of HIV? (Y/N)
   a. If yes, did the patient have at least two medical care encounters during the measurement year? (Y/N)
      i. If yes, did the patient have a HIV viral load test within the measurement year? (Y/N)
      ii. If yes, did the patient have at least one additional medical visit encounter with a provider with prescribing privileges within the measurement year? (Y/N)
      iii. Or, did the patient have two medical visit with provider with prescribing privileges within the measurement year? (Y/N)

Comparison Data: None.

Use in Other Federal Programs: None

U.S. Department of Health and Human Services Guidelines:

Adolescent/Adult Guidelines: ¹ “Several laboratory tests are important for initial evaluation of patients with HIV upon entry into care, and some tests should be performed before and after initiation or modification of antiretroviral therapy (ART) to assess the virologic and immunologic efficacy of ART and to monitor for laboratory abnormalities that may be associated with antiretroviral (ARV) drugs. Table 3 outlines the Panel on Antiretroviral Guidelines for Adults and Adolescents (the Panel)’s recommendations on the frequency of testing. As noted in the table, some tests may be repeated more frequently if clinically indicated.” (Page B-3 of guidelines)
Additionally, Table 3. Laboratory Testing Schedule for Monitoring Patients with HIV Before and After Initiation of Antiretroviral Therapy indicates viral load test should be performed at entry into care; ART initiation or modification; two to eight weeks after ART initiation or modification; in patients on ART every three to six months; every six months of the patient for patients adherent with consistently suppressed viral load and stable immunologic status for more than two years; treatment failure; clinically indicated; and if ART initiation is delayed. (Pages C-2 through C-4 of guidelines)

**Pediatric Guidelines:** 2 “After the initial phase of ART initiation (1 month–3 months), clinicians should assess a patient’s adherence to the regimen and the regimen’s effectiveness (as measured by CD4 cell count and plasma viral load) every 3 months to 4 months. Additionally, clinicians should review a patient’s history of toxicities and evaluate a patient for any new AEs using physical examinations and the relevant laboratory tests. If laboratory evidence of toxicity is identified, testing should be performed more frequently until the toxicity resolves.”

The Panel on Antiretroviral Therapy and Medical Management of Children Living with HIV finds value in continuing to perform viral load testing every 3 to 4 months to provide enhanced monitoring of adherence or disease progression among children and adolescents. Some experts monitor CD4 cell count less frequently (e.g., every 6 months to 12 months) in children and adolescents who are adherent to therapy, who have CD4 cell count values well above the threshold for OI risk, and who have had sustained virologic suppression and stable clinical status for >2 years to 3 years. Some clinicians find value in scheduling visits every 3 months even when lab testing is not performed, in order to review adherence and update drug doses for interim growth” (D-3 of guideline)

Additionally, Table 3. Sample Schedule for Clinical and Laboratory Monitoring of Children Before and After Initiation of Antiretroviral Therapy indicates viral load tests should be performed at entry into care; pre-therapy; ART initiation; weeks two to four on therapy, every three to four months to monitor ARV adherence; and when switching ARV regimens. (Page D-6 of guidelines)

**References/Notes:**


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