

Understanding the HIV Care Continuum

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Overview

Recent scientific advances have shown that antiretroviral therapy (ART) not only preserves the health of people living with HIV, but also dramatically lowers their risk of transmitting HIV to others by reducing the amount of virus in the body. These developments have transformed the nation's approach to HIV prevention. By ensuring that everyone with HIV is aware of their infection and receiving the treatment they need, we can sharply reduce new infections in the United States.

This vision is a core focus of CDC's [high-impact HIV prevention](#) strategy, which aims to achieve the greatest possible reduction in HIV infections by making sure that resources go to the regions, populations and prevention strategies where they will have the greatest impact.

To help gauge progress towards national goals (see sidebar) and direct HIV prevention resources most effectively, CDC tracks the "HIV care continuum." The continuum is the series of steps from the time a person receives a diagnosis of HIV through the successful treatment of their infection with HIV medications. This fact sheet explains the various approaches and data used to develop the HIV care continuum, how it is used to improve outcomes for people living with HIV in the United States and how it helps guide the nation's response to HIV.

What is the HIV Care Continuum?

The ultimate goal of HIV treatment is to achieve viral suppression, meaning the amount of HIV in the body is very low or undetectable. This is important for people with HIV to stay healthy, live longer and reduce their chances of passing HIV to others.

The HIV care continuum consists of several steps required to achieve viral suppression. Specifically, CDC tracks:

- *Diagnosed*
- *Linked to care**, meaning they visited a health care provider within:
 - 1 month (30 days) after learning they were HIV positive
- *Received or were retained in care***, meaning they received medical care for HIV infection
- *Viral suppression*, meaning that their HIV "viral load" – the amount of HIV in the blood – was at a very low level

* Linked to care is calculated differently from other steps in the continuum, and cannot be directly compared to other steps. See Table 1 on page 4 for details.

** Note. Receipt of medical care was defined as ≥ 1 test (CD4 or VL) in 2014. Retained in continuous medical care was defined as ≥ 2 tests (CD4 or VL) ≥ 3 months apart in 2014. Viral suppression was defined as < 200 copies/mL on the most recent VL test in 2014. See Table 1 on page 4 for details.

National HIV Prevention Objectives on HIV Diagnosis and Care

At the national level, several specific goals related to early HIV diagnosis and effective care include:

- Increasing the number of HIV-positive **individuals aware of their status** to 90%
- Increasing the proportion of **persons with newly diagnosed HIV who are linked to care** within one month to 85%
- Increasing the proportion of **HIV-diagnosed individuals whose virus is effectively suppressed** to 80%, with an emphasis on youth and persons who inject drugs

Two Ways to Monitor the Continuum

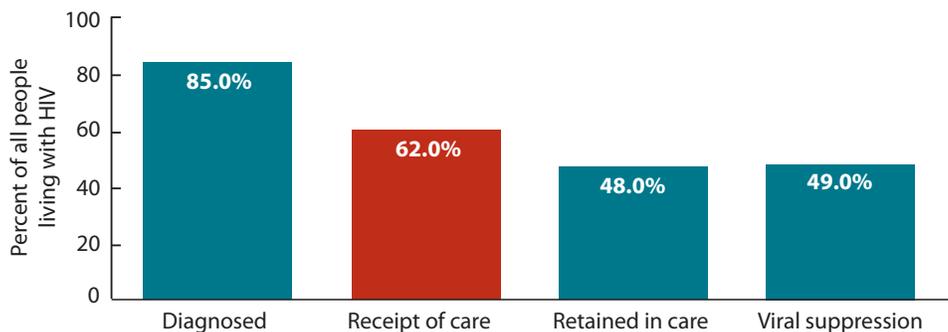
CDC currently uses two different approaches to monitor the HIV care continuum. The two approaches are used for different purposes, but both are essential to monitor the nation's progress and identify key HIV prevention and care needs.

The major difference between the two approaches is that they have different denominators. That is, they measure progress among different groups of people living with HIV:

The **prevalence-based HIV care continuum** describes the number of people who are at each step of the continuum as a percentage of the **total** number of people living with HIV (known as HIV prevalence). Prevalence includes both people whose infection has been diagnosed and those who are infected but don't know it.

This approach allows us to monitor elements of the care continuum by measuring the care outcomes among all Americans living with HIV. It can also monitor outcomes for broad populations, such as African Americans or men who have sex with men (MSM). However, because of certain statistical limitations, this approach does not allow more segmented analyses within those populations, such as young black MSM. See Figure 1 for the 2014 Prevalence-Based HIV Care Continuum.

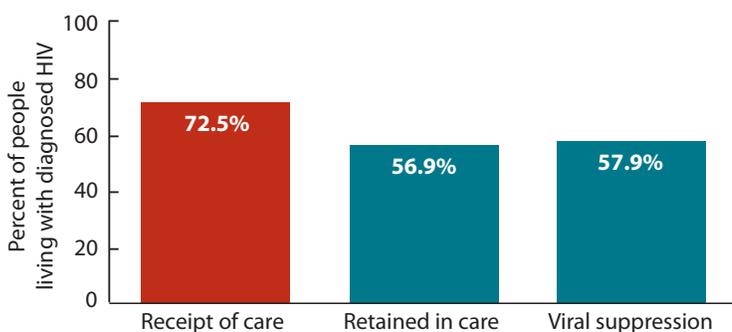
Figure 1: Prevalence-Based HIV Care Continuum, 2014



The **diagnosis-based HIV care continuum** shows each step as a percentage of the number of people **living with diagnosed HIV**.

This approach gives us more detailed information about persons who are living with diagnosed HIV and provides a way to look at the continuum within subgroups of affected populations, for example young black MSM. For the 2014 diagnosis based continuum, see Figure 2.

Figure 2: Diagnosis-Based HIV Care Continuum, 2014



The difference is in the denominators

All people living with HIV (includes persons with diagnosed and undiagnosed infection) is used as the denominator for the prevalence-based continuum.

People living with diagnosed HIV is the denominator used for the diagnosis-based continuum.

Linked to Care:

- In 2015, 75% of persons receiving a diagnosis of HIV were linked to care within 1 month
- Defined as linkage to care within 1 month of HIV diagnosis
- Denominator is persons receiving a diagnosis of HIV in a measurement year; numerator is the number of persons who were linked to care within 1 month
- Because it has a different denominator, it cannot be directly compared to other steps
- See Table 1 on page 4 for additional details

How CDC Develops the Continuum

The data for both the prevalence- and diagnosis-based continua of care approaches come from:

- **The National HIV Surveillance System (NHSS)** provides a range of information on people who have diagnosed HIV or have died with HIV from every U.S. state and territory and the District of Columbia, including race/ethnicity, route of transmission and age. The data are reported to CDC by state and local health departments. This is the source of data for both the prevalence and diagnosis denominators. Data from the states and D.C. that have complete laboratory reporting are used to calculate some measures of the continuum.

Not all steps in the care continuum are necessarily dependent on the previous step. For additional details on the two continuum approaches, see Table 1 below. Some of these indicators are also used to monitor progress toward national goals. For more information on national indicators, please see <https://www.cdc.gov/hiv/pdf/library/factsheets/cdc-hiv-national-hiv-care-outcomes.pdf>.

What is CDC Doing to Improve the Outcomes at Every Stage of the HIV Care Continuum?

CDC is undertaking many initiatives including:

- *Directly funding health departments and community-based organizations (CBOs)* – to increase HIV testing, improve linkages to care and support improvement of viral suppression for persons living with HIV and improve linkages to PrEP and other prevention services for persons who are at risk for HIV.
- *Providing technical assistance* – to help health departments and CBOs develop the tools and skills to successfully implement effective HIV prevention activities for people living with HIV in their communities.
- *Improving surveillance capability and technology* – to assist states with improving completeness of laboratory data that are needed to assess many of the steps in the HIV care continuum and the selected national HIV care outcomes.
- *Researching new approaches* – including studies of clinical, behavioral and structural interventions to help people with HIV stay in care and adhere to their medications.
- *Developing guidelines* – for health care providers on HIV testing, care, treatment, and prevention.
- *Launching educational campaigns and a HIV Risk Reduction Tool* – to help health care providers integrate simple prevention approaches into routine care for people living with HIV and to help all audiences understand risks for HIV.

Different Approaches for Different Needs

CDC's current approaches draw on the best data available.

It is **important to know how the continuum will be used**. Some uses of the prevalence-based continuum include:

- Monitoring testing efforts in the U.S. and demonstrating the importance of diagnosing HIV infections to achieve viral suppression
- Monitoring how the U.S. is doing among all persons living with HIV
- Comparing U.S. data to other countries who monitor the continuum among all persons living with HIV

Some uses of the diagnosis-based continuum include:

- Monitoring U.S. progress in comparison to national level 2020 goals
- Monitoring U.S. progress in comparison to the UNAIDS 90-90-90 goals
- Monitoring disparities by examining data among subgroups of the population
- Monitoring data at a local level to understand local progress and identify additional action steps to meet national level goals

Ways of presenting the continuum will also **continue to evolve over time**, as better and more complete data become available.

Table 1: Calculating the Continuum: Step by Step

Continuum Step	
Diagnosed	<p>Measures the percentage of the total number of people living with HIV whose infection has been diagnosed.</p> <p>The denominator for this continuum step is HIV prevalence, which is the total number of people living with HIV (includes both those with diagnosed infection and those with undiagnosed infection). HIV prevalence is estimated through statistical modeling using NHSS data from all U.S. states and the District of Columbia.</p>
Receipt of care	<p>NHSS data from states and D.C. with complete reporting of CD4 and viral load test results are used to estimate “receipt of care” and “retained in care.”</p> <p>Receipt of care is measured as the percentage of persons with diagnosed HIV who had at least 1 CD4+ or viral load test.</p> <p>The denominator for the prevalence-based continuum is all persons living with HIV (HIV prevalence). The denominator for the diagnosis-based continuum is all persons living with diagnosed HIV (diagnosed prevalence*).</p>
Retained in Care	<p>NHSS data from states and D.C. with complete reporting of CD4 and viral load test results are used to estimate “receipt of care” and “retained in care.”</p> <p>Retained in care is measured as the percentage of persons with diagnosed HIV who had two or more viral load or CD4+ tests, performed at least three months apart.</p> <p>The denominator for the prevalence-based continuum is all persons living with HIV (HIV prevalence). The denominator for the diagnosis-based continuum is all persons living with diagnosed HIV (diagnosed prevalence*).</p>
Viral Suppression	<p>NHSS data from states and D.C. that have complete laboratory reporting are used to determine viral suppression.</p> <p>The denominator for the prevalence-based continuum is all persons living with HIV (HIV prevalence). The denominator for the diagnosis-based continuum is all persons living with diagnosed HIV (diagnosed prevalence*).</p>
Linked to Care	<p>NHSS data from states and D.C. with complete reporting of CD4 and viral load test results are used to determine “linked to care.”</p> <p>Linked to care measures the percentage of <i>people receiving a diagnosis of HIV in a given calendar year</i> who had one or more documented viral load or CD4+ test <i>within 30 days (1 month) of diagnosis</i>.</p> <p>Because this measure is limited to people with HIV diagnosed only in a single year, it cannot be directly compared to other steps in the continuum. This means that the denominator for linkage to care is different from the denominators used to calculate the other steps in the continuum. It is also important to note that an individual who enters care more than 30 days after diagnosis may still be included in subsequent steps of the continuum, but would not be counted as “linked to care.”</p>

*Diagnosed prevalence is defined as the number of persons diagnosed with HIV through the end of one year and are living through the end of the next year (e.g., diagnosed prevalence for 2014 is defined as persons receiving a diagnosis of HIV in 2013 and living through the end of 2014.)