

# Understanding the HIV Care Continuum

## Overview

Recent scientific advances have shown that antiretroviral therapy (ART) not only preserves the health, quality of life, and life expectancy of people living with HIV, but people living with HIV who take HIV medicine as prescribed and get and keep an undetectable viral load have effectively no risk of transmitting HIV to their HIV-negative sexual partners.

These developments have transformed the nation's approach to HIV prevention. By ensuring that everyone with HIV is aware of their infection, receives the treatment they need, and achieves sustained viral suppression, 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 reductions 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.

## National HIV/AIDS Strategy, 2020 Objectives on HIV Diagnosis and Care

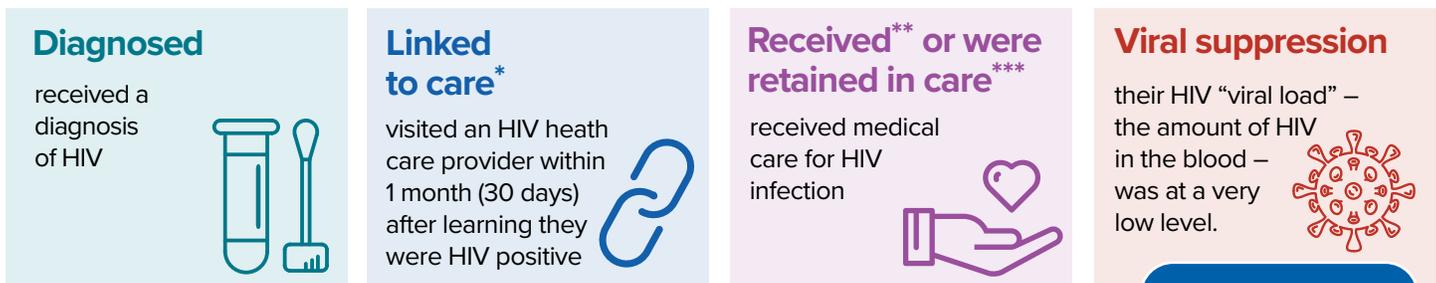
At the national level several specific goals related to early HIV diagnosis and effective care include:

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

## What is the HIV Care Continuum?

The ultimate goal of HIV treatment is to achieve viral suppression, which means the amount of HIV in the body is very low or undetectable. This is important for people with HIV to stay healthy, have improved quality of life, and live longer. People living with HIV who maintain viral suppression have effectively no risk of passing HIV to others.

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



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\* 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 5 for details.  
 \*\* Receipt of medical care was defined as ≥1 test (CD4 or viral load [VL]) in 2016.  
 \*\*\* Retained in continuous medical care was defined as ≥2 tests (CD4 or VL) ≥3 months apart in 2016. Viral suppression was defined as <200 copies/mL on the most recent VL test in 2016. See Table 1 on page 5 for details.

## 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, and 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:

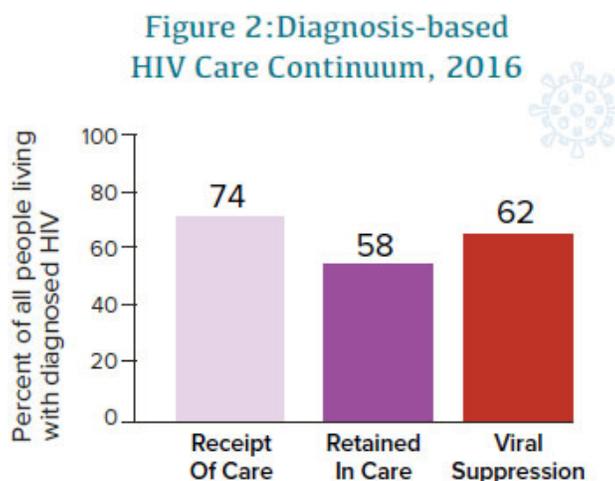
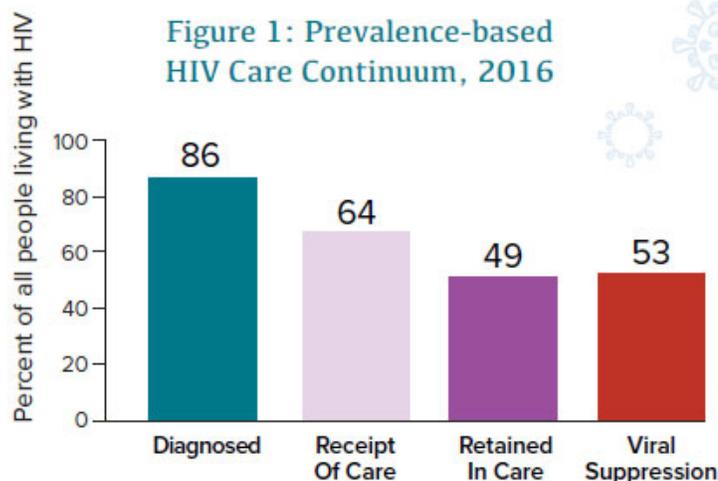
**The prevalence-based HIV care continuum** describes the number of people who are at each step of the continuum as a percentage of the **total number of people living with HIV** (known as HIV prevalence). Prevalence includes both people whose infection has been diagnosed and those who are infected but 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 2016 prevalence-based HIV care continuum.

**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 2016 diagnosis-based continuum, see Figure 2.

**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 2017, 78% of persons receiving a diagnosis of HIV were linked to care within 1 month.
- Defined as linked 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 in the continuum.

**See Table 1 on page 4 for additional details**



## 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 2020 goals
- Monitoring U.S. progress in comparison to the UNAIDS 90-90-90 goals
- Monitoring disparities by examining data among sub-groups 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 also will continue to evolve over time, as better and more complete data become available.

## 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)**, which provides a range of information on people who have diagnosed HIV or have died with HIV. Data are from every U.S. state and territory and the District of Columbia and include sex, 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.

For more information, details on the two continuum approaches are found in Table 1 below. Some of these indicators are also used to monitor progress toward the 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 step of the HIV Care Continuum?

CDC is undertaking many initiatives including:

- **Directly funding health departments to implement a comprehensive HIV surveillance and prevention program** – to prevent new HIV infections and achieve viral suppression among persons living with HIV. The integrated approach promotes and supports improving health outcomes for persons living with HIV through achieving and sustaining viral suppression, and reducing health-related disparities by using quality, timely, and complete surveillance and program data to guide HIV prevention efforts. Priority activities include HIV testing; linkage to, re-engagement in, and retention in care and support for achieving viral suppression; support for pre-exposure prophylaxis (PrEP); community-level HIV prevention activities; and HIV transmission cluster investigations and outbreak response efforts.
- **Directly funding 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 in outbreak response and 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** – to include studies of clinical, behavioral and structural interventions to help people with HIV stay in care, get back in care if they fall out of care, and adhere to their medications.
- **Developing guidelines** – to assist health care providers with HIV testing, care, treatment, and prevention.
- **Launching educational campaigns and an HIV Risk Reduction Tool** – to implement social marketing campaigns and provide educational resources; to help health care providers, at-risk populations, people with HIV, and the general public to reduce HIV stigma; increase HIV testing, prevention, and treatment; and understand risks for getting or transmitting HIV.

Table 1: Calculating the Continuum: Step by Step

Continuum Step	
<b>Diagnosed</b>	<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 National HIV Surveillance System (NHSS) data from all U.S. states and the District of Columbia (DC).</p>
<b>Receipt of Care</b>	<p>NHSS data from states and DC 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 one 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>
<b>Retained in Care</b>	<p>NHSS data from states and DC 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 CD4 or viral load 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>
<b>Viral Suppression</b>	<p>NHSS data from states and D.C. that have complete laboratory reporting are used to determine viral suppression.</p> <p>Viral suppression is measured as a viral load test result of &lt;200 copies/mL at the most recent viral load test during measurement year.</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>
<b>Linked to Care</b>	<p>NHSS data from states and DC 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 people <i>receiving a diagnosis of HIV in a given calendar year</i> who had one or more documented CD4 or viral load tests <i>within 30 days (1 month) of diagnosis</i>.</p> <p>Because this measure is limited to people with HIV diagnosed 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 <b>different</b> 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>

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\*Diagnosed prevalence is defined as the number of persons with HIV diagnosed through the end of 1 year and are living through the end of the next year (e.g. diagnosed prevalence for 2016 is defined as persons receiving a diagnosis of HIV by end of 2015 and living through the end of 2016).