

# HIV Care Continuum

(updated June 2021)



# HIV Care Continuum

This educational packet is a curated compilation of resources on the HIV care continuum.

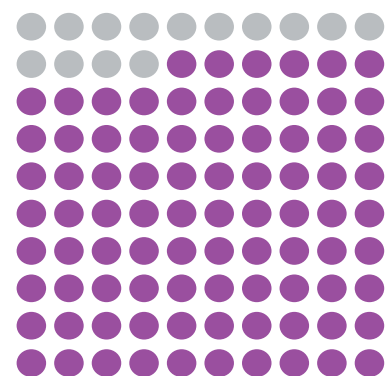
The contents of this packet are listed below:

- HIV in the United States – HIV Care Continuum (CDC)
- HIV Care Continuum (HIV.gov)
- Understanding the HIV Care Continuum (CDC)
- Selected National HIV Prevention and Care Outcomes in the United States (CDC)
- Health Communication Makes an Impact on the HIV Continuum of Care (Health Communication Capacity Collaborative)

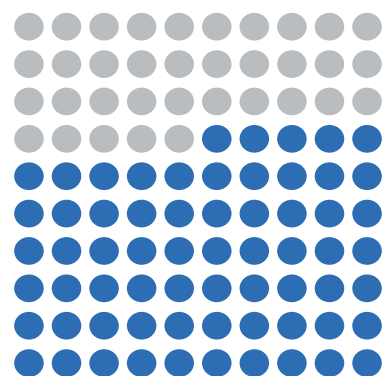
You may wish to customize this packet to meet the needs or interests of particular groups, such as event participants, providers, patients, clients, or the general public. So please feel free to distribute all or part of this document as either a printout or PDF.

# HIV in the United States

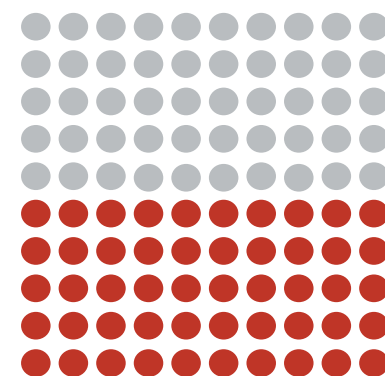
Not all people with HIV are getting the care they need. An estimated **1.2 million people had HIV in the US in 2018**. For **every 100 people with HIV**:\*



**86**  
received  
an HIV  
diagnosis



**65**  
received  
some  
HIV care



**50**  
were  
retained  
in care



**56**  
were virally  
suppressed

\* Includes people with diagnosed or undiagnosed HIV.

[www.cdc.gov/hiv](http://www.cdc.gov/hiv) | 1-800-CDC-INFO

## Get Tested. Get in Care. Stay in Care. Stay Healthy.

Sources: CDC. Monitoring selected HIV prevention and care objectives using HIV surveillance data—United States and 6 dependent areas, 2018. *HIV Surveillance Supplemental Report* 2020;25(2).

CDC. Selected national HIV prevention and care outcomes (slides).

Based on the most recent data available in December 2020.



# HIV Care Continuum

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 [hiv.gov/federal-response/policies-issues/hiv-aids-care-continuum](https://hiv.gov/federal-response/policies-issues/hiv-aids-care-continuum)

Content Source: HIV.gov Date last updated: February 04, 2021

February 4, 2021

## What Is the HIV Care Continuum?

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The HIV care continuum is a public health model that outlines the steps or stages that people with HIV go through from diagnosis to achieving and maintaining viral suppression (a very low or undetectable amount of HIV in the body).

The steps are:

- diagnosis of HIV infection
- linkage to HIV medical care
- receipt of HIV medical care
- retention in medical care
- achievement and maintenance of viral suppression

## Why Is the HIV Care Continuum Important?

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The HIV care continuum is useful both as an **individual-level** tool to assess care outcomes, as well as a **population-level** framework to analyze the proportion of people with HIV in a given community who are engaged in each successive step. This helps policymakers and service providers better pinpoint where gaps in services might exist and develop strategies to better support people with HIV to achieve the treatment goal of viral suppression.

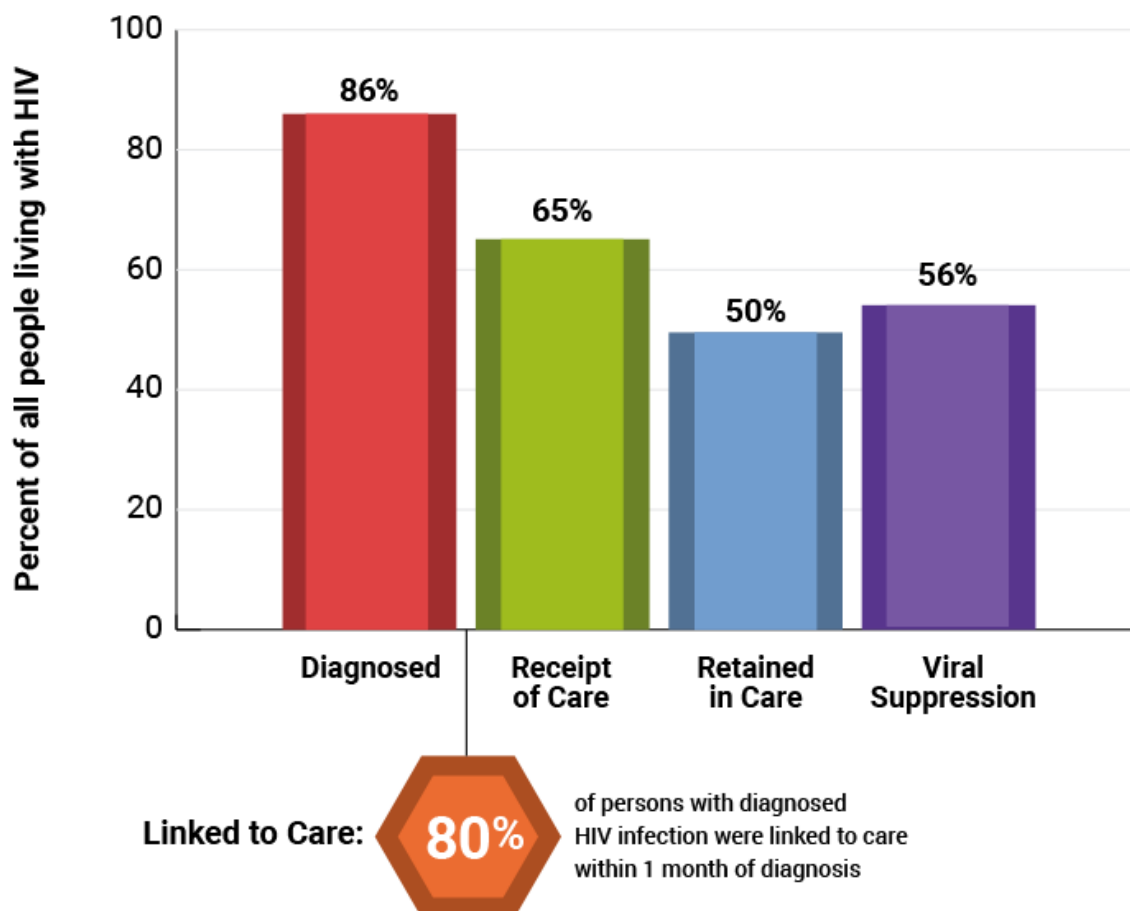
Supporting people with HIV to move through the steps of the continuum to achieve and maintain viral suppression is critical. There are important **health benefits** to getting the viral load as low as possible: people living with HIV who get and keep an undetectable viral load can live long, healthy lives. There is also a major **prevention benefit**: people with HIV who take HIV medicine daily as prescribed and get and keep an undetectable viral load have effectively no risk of transmitting HIV to their HIV-negative sexual partners.

For individuals with HIV to receive these benefits, they need to be aware that they have HIV, be connected to and engaged in regular HIV care, and receive and adhere to treatment with HIV medicine. However, there are obstacles that can contribute to poor engagement in HIV care and treatment, substantially limiting the effectiveness of efforts to improve health outcomes for those with HIV and reduce new HIV transmissions.

Knowing where the gaps are most pronounced, and for what populations, is vital to knowing how, where, and when to intervene to break the cycle of HIV transmission in the United States.

## What Does the HIV Care Continuum Show?

### Prevalence-based HIV Care Continuum, U.S. and 6 Dependent Areas, 2018



**Note:** Receipt of medical care was defined as  $\geq 1$  test (CD4 or VL) in 2016. Retained in medical care was defined as  $\geq 2$  tests (CD4 or VL)  $\geq 3$  months apart in 2016. Viral suppression was defined as  $< 200$  copies/mL on the most recent test in 2016. Linkage to care is defined as having  $\geq$  one CD4 or VL test within 30 days (1 month) of diagnosis. (Linkage is calculated differently from the other steps in the continuum, and cannot be directly compared to other steps.)

*CDC, Monitoring selected national HIV prevention and care objectives by using HIV surveillance data—United States and 6 dependent areas, 2018. [HIV Surveillance Supplemental Report 2020;25\(No. 2\)](#). Published May 2020.*

This HIV Care Continuum chart is based on the prevalence of HIV in the U.S. *Prevalence* describes the number of people living with HIV at a given time, regardless of when they were infected or whether they have received a diagnosis. (Some people may have HIV but not know it). Prevalence data is useful for planning and resource allocation, as it reflects the number of people currently needing HIV care and treatment services. Prevalence rates are

also useful for comparing HIV disease between populations and for monitoring trends over time. ([Read more about the prevalence-based approach to monitoring the HIV care continuum and how it is used.](#))

According to [CDC data](#) available in May 2020, at the end of 2018, an estimated 1.2 million people aged 13 and older were living with HIV in the United States. Of those 1.2 million people:

- **Diagnosis**—An estimated **86% were diagnosed**. That means that 14% of people with HIV (approximately 1 in 7) did not know they had HIV and were therefore not accessing the care and treatment they need to stay healthy and prevent transmitting the virus to their partners.
- **Receipt of Care**—Approximately **65% had received HIV medical care**. CDC measures receipt of care as the percentage of persons with diagnosed HIV who had at least one CD4 or viral load test run by a health care professional in a given year. Once in medical care, people can start HIV medicine (called antiretroviral therapy or ART) to help them stay healthy and protect their partners. [Initiating ART is recommended for all people with diagnosed HIV.](#)
- **Retention in Care**—Approximately **50% were retained in care**. CDC measures retention in care as the percentage of persons with diagnosed HIV who had two or more CD4 or viral load tests, performed at least three months apart. People with HIV who have ongoing, regularly scheduled medical care have been shown to have [better health outcomes](#) and increased [safer sexual behaviors](#).
- **Viral Suppression**—An estimated **56% had achieved viral suppression**. CDC measures viral suppression as a viral load test result of <200 copies/mL at the most recent viral load test during measurement year. In other words, a little more than half of those with HIV had the virus under control.
- **Linkage to care**—According to CDC, of those who received an HIV diagnosis in 2018, **80% were linked to care** within one month. This figure is calculated differently from other steps in the continuum, so it cannot be directly compared. CDC defines linkage as having one or more documented CD4 or viral load tests within 30 days (1 month) of HIV diagnosis. The denominator is limited to the number of people receiving an HIV diagnosis in a given year, rather than the total number of people living with HIV that is used in the calculations for the other continuum steps.

Different research studies present the steps or stages of the HIV care continuum in different ways. For example, CDC also offers a *diagnosis-based continuum*, which shows each step as a percentage of the number of people living with *diagnosed* HIV. ([Read about the diagnosis-based approach to monitoring the HIV care continuum and how it is used.](#))

Further, a 2019 CDC [analysis](#) shows that the vast majority (about 80 percent) of new HIV infections in the U.S. in 2016 came from the nearly 40 percent of people who either did not know they had HIV or who received a diagnosis but were not receiving HIV care and

treatment. This highlights the need to increase the proportion of people with HIV who are aware of their status and to help those with HIV get into care and treatment.

## How Is the HIV Care Continuum Being Used?

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Federal, state and local health departments, community-based organizations, health care providers, and people with HIV continue to use the HIV care continuum to measure progress toward HIV goals as well as to pinpoint where gaps in services may exist in connecting individuals with HIV to sustained, quality care and treatment. Knowing where drop-offs are most pronounced, and for what populations, helps policymakers and health care providers implement system improvements to support all persons with HIV who are able to successfully navigate the continuum and achieve viral suppression.

## Take a Closer Look

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To learn more about the HIV care continuum in the U.S. and how the steps are defined and measured, see these resources:

- CDC – [HIV Care and HIV Care Continuum for Providers](#)
- CDC – [Selected HIV Prevention and Care Outcomes in the United States](#)
- CDC – [Understanding the HIV Care Continuum](#)
- CDC – [Vital Signs: HIV Transmission Along the Continuum of Care](#)
- HRSA-HAB – [HIV Care Continuum Among Ryan White HIV/AIDS Program Clients](#)
- HRSA-HAB – [TargetHIV: HIV Care Continuum](#)

# 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:

### Diagnosed

received a diagnosis of HIV



### Linked to care\*

visited an HIV health care provider within 1 month (30 days) after learning they were HIV positive



### Received\*\* or were retained in care\*\*\*

received medical care for HIV infection



### Viral suppression

their HIV "viral load" – the amount of HIV in the blood – was at a very low level.



National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention  
Division of HIV/AIDS Prevention



\* 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  $\geq 1$  test (CD4 or viral load [VL]) in 2016.

\*\*\* Retained in continuous medical care was defined as  $\geq 2$  tests (CD4 or VL)  $\geq 3$  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.

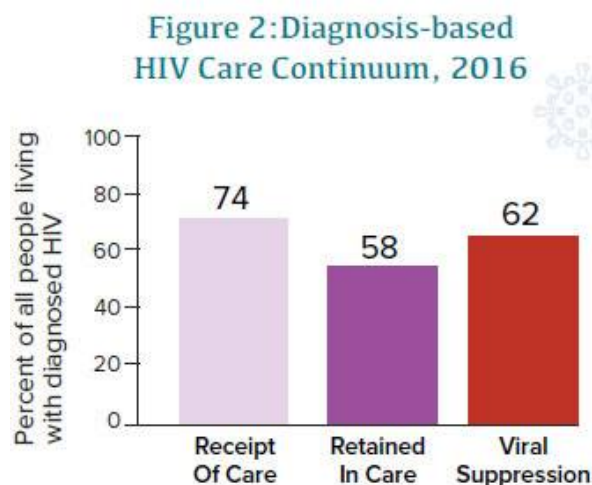
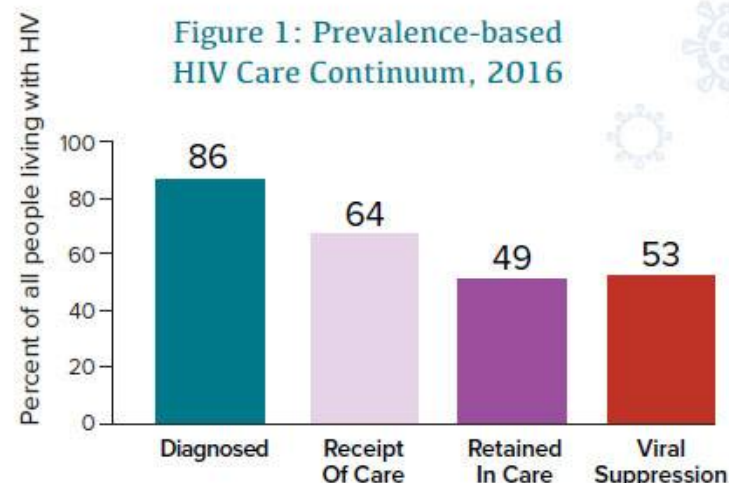
This approach allows us to monitor elements of the care continuum by measuring the care outcomes among all Americans living with HIV. It can also monitor outcomes for broad populations, such as African Americans or men who have sex with men (MSM). However, because of certain statistical limitations, 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

78%

- 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>
<p>National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention Division of HIV/AIDS Prevention</p>	



\*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).

# Selected National HIV Prevention and Care Outcomes in the United States

JULY 2019

**Viral suppression is the ultimate goal of HIV treatment. HIV treatment has dramatically improved the health, quality of life, and life expectancy of people living with HIV.**

Additionally, 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.

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 and thereby reduce new HIV diagnoses in the United States.

The “Selected National HIV Prevention and Care Outcomes” are select indicators that are used to monitor progress toward **U.S. national goals** outlined in the National HIV/AIDS Strategy, 2020 (NHAS 2020). Because the bars use different denominators, the data are presented as separate bar charts.

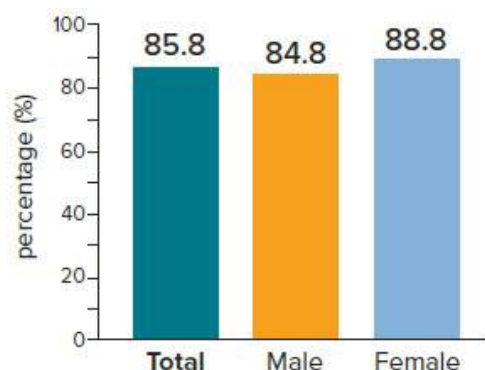
## National HIV Indicators

There are 13 indicators to track progress towards NHAS 2020 goals.

Several specific indicators related to HIV diagnosis, effective care and treatment include:

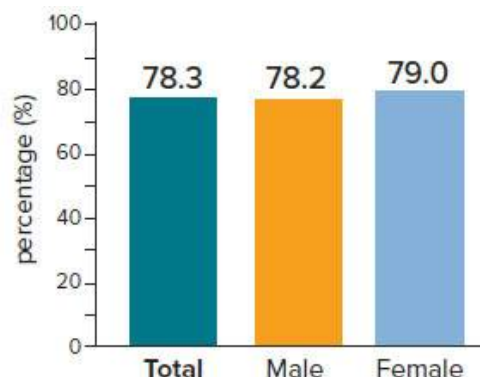
- Knowledge of HIV serostatus (i.e., diagnosed HIV infection)
- Linkage to HIV medical care
- Retention in HIV medical care
- Viral Suppression

**Diagnosed Infection** among Persons Aged  $\geq 13$  Years Living with Diagnosed or Undiagnosed HIV Infection, by Sex 2016 • United States



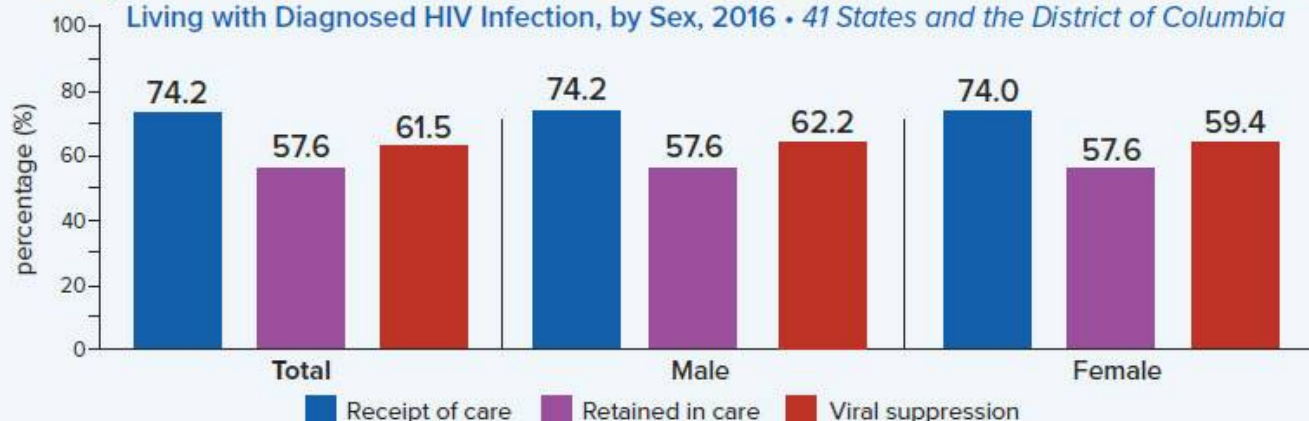
Note: Estimates derived from a CD4 depletion model using HIV surveillance data.

**Linkage to HIV Medical Care within 1 Month after HIV Diagnosis** during 2017 among Persons Aged  $\geq 13$  Years, by Sex • 41 States and the District of Columbia



Note: Linkage to HIV medical care was defined as having a CD4 or VL test  $\leq 1$  month after HIV diagnosis

**Receipt of HIV Medical Care, Retention in Care, and Viral Suppression among Persons Aged  $\geq 13$  Years Living with Diagnosed HIV Infection, by Sex, 2016 • 41 States and the District of Columbia**



Note: Receipt of medical care was defined as  $\geq 1$  test (CD4 or VL) in 2016. Retained in continuous medical care was defined as  $\geq 2$  tests (CD4 or VL)  $\geq 3$  months apart in 2016. Viral suppression was defined as  $< 200$  copies/mL on the most recent test in 2016.



**The data source for the “Select HIV Care Outcomes” is the National HIV Surveillance System (NHSS).** NHSS provides a range of information on people who received a diagnosis in a particular year, live with diagnosed HIV or have died with HIV. The data are reported to CDC by state and local health departments. The most recent data on linkage to care, retention in care, and viral suppression are from 42 jurisdictions (41 states and D.C.) that have complete lab reporting. These jurisdictions represent 89% of persons living with diagnosed HIV in the United States. Persons are assigned to the 42 jurisdictions based on residence at diagnosis for linkage to care and on the most recent known address for retention and viral suppression. For additional details on how these outcomes are calculated, see Table 1.

Diagnosed HIV infection in the United States is measured as the percentage of persons living with diagnosed HIV among the estimated number of persons living with diagnosed or undiagnosed HIV infection at year-end 2016. The denominator is all persons living with HIV (includes diagnosed or undiagnosed HIV and is estimated through modeling).

## Importance Of Complete Laboratory Reporting

Measuring the components of the continuum of care and progress toward the goals of the National HIV/AIDS Strategy, 2020, relies on laboratory reporting of HIV-related tests to the local and national HIV surveillance systems. The CDC recommends reporting of all HIV-related test results, including CD4+T-lymphocyte (CD4) results and all viral load test results. This comprehensive laboratory reporting recommendation is in alignment with the Council of State and Territorial Epidemiologists’ (CSTE) position (ID: 2001-ID-03). Laboratory data, including CD4 and viral load test results, are an essential component of the National HIV Surveillance System (NHSS) as they can be used to identify cases, classify stage of disease at diagnosis, and monitor disease progression. These data can be used to evaluate HIV testing and prevention efforts, determine entry into care, retention in care, and monitor viral load suppression.

## How Selected National HIV Care Outcomes are used to Monitor Progress and Identify Needs

**The outcomes are defined using national indicator definitions.** At the national level, these data are used to inform decisions about how to best prioritize and target available resources and to monitor progress toward meeting national goals. Because NHSS data are available at the state and local levels, the national level indicators were defined in a way that allows states to use their data to track progress over time and identify where improvements are needed.

Ways of presenting HIV care outcomes will continue to evolve over time as better and more complete data become available. For more information on data used to monitor outcomes, refer to “Monitoring Selected National HIV Prevention and Care Objectives by Using HIV Surveillance data, United States and 6 Dependent Areas – 2017. <https://www.cdc.gov/hiv/pdf/library/reports/surveillance/cdc-hiv-surveillance-supplemental-report-vol-24-3.pdf>

Table 1. Selected National HIV Prevention and Care Outcomes

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 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<sup>1</sup> 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 DC with complete reporting of CD4 and viral load test results are used to estimate “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 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 <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).

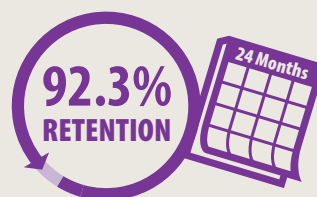
<sup>1</sup> Song R, Hall HI, Green T, et al. Using CD4 Data to Estimate HIV Incidence, Prevalence, and Percent of Undiagnosed Infections in the United States. 2017. J Acquir Immune Defic Syndr; 74: 3-9.

## Health Communication Makes an Impact on

# The HIV Continuum of Care

## Community Support and Enhanced Counseling Saves Lives

In Rwanda, a community-based antiretroviral therapy (ART) program **achieved a 92.3% retention in care after 24 months** by enrolling patients in education and support groups that met the same day as clinic visits, and included community health workers who directly observed them taking their medication and offered psychosocial support.<sup>1</sup>

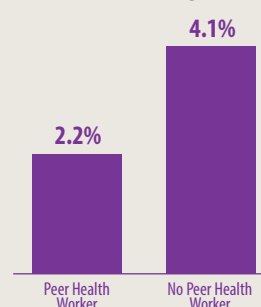


Those who received enhanced post-test counseling in Uganda, coupled with home visits and continued counseling support, were **80% more likely to return for pre-ART care** as those in the standard counseling group.<sup>2</sup>



Also in Uganda, involving community-based peer health workers decreased the amount of people lost to follow-up by **44%** compared with no peer health workers.<sup>3</sup>

Percentage of People Lost to Follow-up



63.2%  
IN CARE

Receiving a visit from a person living with HIV (PLHIV) significantly improved HIV care enrollment rates among participants in a Kenya study. Of those consenting to follow-up, **63.2% enrolled in HIV care** within 3 months.<sup>4</sup>

90%  
↑  
65%

Home visits to supervise ART in a Peru program greatly increased the number remaining on treatment after 12 months **from 65% to 90%**, when compared with a control group.<sup>5</sup>



Weekly SMS messages to patients in a Kenya study inquiring about their health and requesting a response within 24 hours **improved** rates of self-reported **adherence** to HIV treatment and **increased** the likelihood of viral suppression.<sup>6</sup>

<sup>1</sup> Rich, M. L., Miller, A. C., Niyigena, P., Franke, M. F., Niyonzima, J. B., Socci, A., ... & Binagwaho, A. (2012). Excellent Clinical Outcomes and High Retention in Care Among Adults in a Community-Based HIV Treatment Program in Rural Rwanda. *JAIDS Journal of Acquired Immune Deficiency Syndromes*, 59(3), e35-e42.

<sup>2</sup> Muhamadi, L., Tumwesigye, N. M., Kadobera, D., Marrone, G., Wabwire-Mangen, F., Pariyo, G., ... & Ekström, A. M. (2011). A single-blind randomized controlled trial to evaluate the effect of extended counseling on uptake of pre-antiretroviral care in Eastern Uganda. *Trials*, 12(1), 184.

<sup>3</sup> Chang, L. W., Kagaayi, J., Nakigozi, G., Ssempiijja, V., Packer, A. H., Serwadda, D., ... & Reynolds, S. J. (2010). Effect of peer health workers on AIDS care in Rakai, Uganda: a cluster-randomized trial. *PloS One*, 5(6), e10923.

<sup>4</sup> Hatcher, A. M., Turan, J. M., Leslie, H. H., Kanya, L. W., Kwena, Z., Johnson, M. O., ... & Cohen, C. R. (2012). Predictors of linkage to care following community-based HIV counseling and testing in rural Kenya. *AIDS and Behavior*, 16(5), 1295-1307.

<sup>5</sup> Muñoz, M., Finnegan, K., Zeladita, J., Caldas, A., Sanchez, E., Callacna, M., ... & Shin, S. (2010). Community-based DOT-HAART accompaniment in an urban resource-poor setting. *AIDS and Behavior*, 14(3), 721-730.

<sup>6</sup> Lester, R. T., Ritvo, P., Mills, E. J., Kariri, A., Karanja, S., Chung, M. H., ... & Plummer, F. A. (2010). Effects of a mobile phone short message service on antiretroviral treatment adherence in Kenya (WelTel Kenya1): a randomised trial. *The Lancet*, 376(9755), 1838-1845.