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 central to the National HIV/AIDS Strategy, the nation's roadmap for addressing HIV in the United States (see sidebar). It is also 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. And it is backed by the HIV Care Continuum Initiative, an effort launched by President Obama in 2013 to increase the impact of HIV diagnosis and care efforts.

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 is diagnosed with 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 Prevention Objectives on HIV Diagnosis and Care

The National HIV/AIDS Strategy, released in 2010, includes several specific goals related to early HIV diagnosis and effective care, including:

- Increasing the number of HIV-positive **individuals aware of their status** to 90 percent
- Increasing, to 85 percent, the proportion of **newly diagnosed individuals who are linked to care** within three months
- Increasing the proportion **of HIV-diagnosed individuals whose virus is effectively suppressed**, with an emphasis on African Americans, Latinos and gay and bisexual men of all races, the populations most affected by 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 the proportion of people with HIV who are:

- *Diagnosed* with HIV infection
- *Linked to care**, meaning they visited a heath care provider within three months after learning they were HIV positive
- *Engaged or retained in care***, meaning they received medical care for HIV infection
- *Prescribed antiretroviral therapy* to control their HIV infection
- *Virally suppressed*, meaning that their HIV viral load – the amount of HIV in the blood – is at a very low level

* Linkage 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 more details. ** Based on the different ways to monitor the continuum, people with HIV in care are measured either as those "engaged in care" or "retained in care." See Table 1 on page 4 for more details.

It's important to note that movement along the continuum is not always in one direction. For example, a person who achieved viral suppression might fall back to an earlier step if they do not continue to receive adequate medical care. In addition, not all steps depend on the previous step.

How CDC Monitors the Continuum

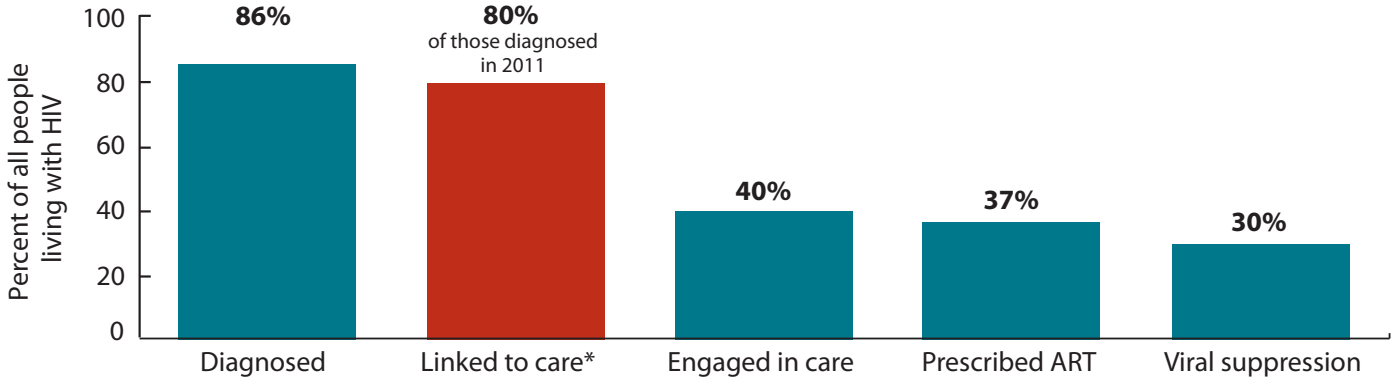
CDC currently uses two different approaches to monitor the HIV care continuum. Both are essential to monitor the nation's progress and identify key HIV prevention and care needs.

The 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** shows each step of the continuum as a percentage of the total number of people living with HIV ("HIV prevalence"). Prevalence includes estimates of people whose infection has been diagnosed and people who are infected but don't know it ("undiagnosed").*

This approach is used to examine the care continuum among all Americans living with HIV (see Example 1). It can also monitor outcomes for broad populations, such as African Americans or men who have sex with men (MSM) overall. However, because of certain statistical limitations, this continuum does not allow analyses within subgroups of those populations, such as young black MSM.

Example 1: Prevalence-Based HIV Care Continuum, 2011



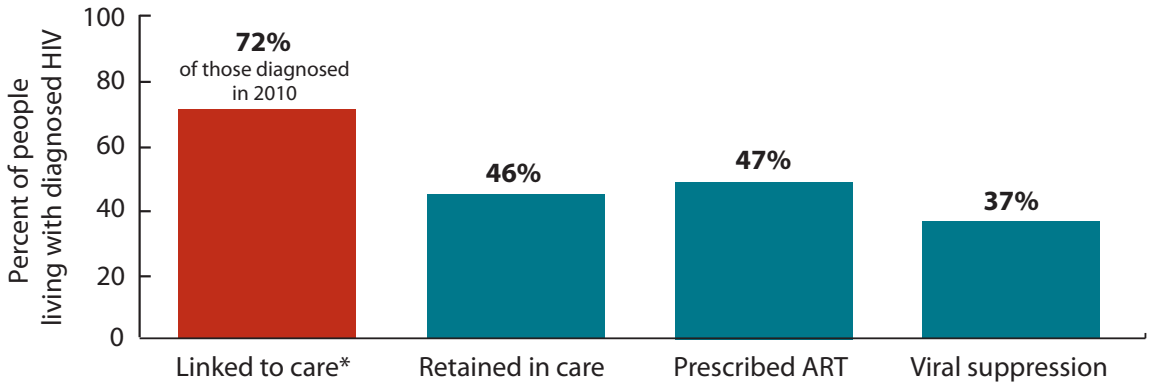
* Linkage to care measures the percentage of people *diagnosed with HIV in a given calendar year* who had one or more documented viral load or CD4+ test *within three months of diagnosis*. Because it is calculated differently from other steps in the continuum, it cannot be directly compared to other steps and is therefore shown in a different color. See Table 1 on page 4 for more details.

Source: CDC. Vital Signs: HIV Diagnosis, Care, and Treatment Among Persons Living with HIV — United States, 2011. *MMWR*. 2014;63(47):1113-1117.

*The **diagnosis-based HIV care continuum** shows each step of the continuum as a percentage of the number of people living with HIV who have been diagnosed ("living with diagnosed HIV").*

This approach gives us more detailed information about persons who are diagnosed with HIV. It can also provide a way to look at the continuum within more specific subgroups of affected populations, for example young black MSM (see Example 2) or heterosexual Latina women.

Example 2: Diagnosis-Based HIV Care Continuum, Black MSM, 2010



* Linkage to care measures the percentage of people *diagnosed with HIV in a given calendar year* who had one or more documented viral load or CD4+ test *within three months of diagnosis*. Because it is calculated differently from other steps in the continuum, it cannot be directly compared to other steps and is therefore shown in a different color. See Table 1 on page 4 for more details.

Source: CDC. Men Living with Diagnosed HIV Who Have Sex with Men: Progress Along the Continuum of HIV Care – United States, 2010. *MMWR*. 2014;63(8):829-833.

How CDC Develops the Continuum

The data for both the prevalence- and diagnosis-based continuum of care approaches come primarily from two CDC HIV surveillance systems:

- ***The National HIV Surveillance System (NHSS)*** provides a range of information on people who are diagnosed 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 can also be used to calculate some measures of the continuum.
- ***The Medical Monitoring Project (MMP)*** provides a range of information on the experiences of people receiving HIV care and the outcomes of their treatment, including the number of people receiving care, the number prescribed ART and the number who achieve viral suppression. The data are reported to CDC by a sample of states, cities and Puerto Rico. MMP data are weighted to be nationally representative.

Different steps, or "bars," within a single continuum come from different sources of data. For additional details on how these data sources are used in the two continuum approaches, see Table 1 below.

Different Approaches for Different Needs

While CDC's current approaches draw on the best data available, **there is no single best way** to develop an HIV care continuum.

Based on its intended purpose, each continuum may use a different denominator; different steps within one continuum may be based on different data sources; and some steps may be calculated differently in one continuum than another.

To select the right data sources and decide how to present them, it is **important to know how the continuum will be used**.

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: CDC's Current Data Sources, Step by Step

Continuum Step	Data Sources & Definitions	
	Prevalence-Based Continuum	Diagnosis-Based Continuum
HIV Prevalence	CDC estimates the total number of people living with HIV – whether diagnosed or not – through statistical modeling using NHSS data from all U.S. states and D.C. *(Denominator for prevalence-based continuum.)*	
Diagnosed with HIV Infection	The number of people who have been diagnosed and are living with HIV infection is calculated as part of the HIV prevalence estimate above.	NHSS data are used to estimate the number of people currently diagnosed and living with HIV. *(Denominator for diagnosis-based continuum.)*
Linked to Care	Measures the percentage of people *diagnosed with HIV in a given calendar year* that had one or more documented viral load or CD4+ test *within three months of diagnosis*. Calculated using NHSS data from states and D.C. that have complete laboratory reporting. Because linkage to care is based on a different denominator than other indicators in the continuum – i.e., people diagnosed in a single year – it cannot be directly compared to other steps in the continuum. Therefore, linkage to care is often shown in a different color or separately from the other steps in the continuum (refer to Examples 1 and 2 in this fact sheet).	
Engaged or Retained in Care	MMP data are used to estimate those "engaged in care," measured as the percentage of people living with HIV who had at least one HIV medical care visit during the survey's sampling period in the observed year. NHSS data from the states and D.C. that have complete laboratory reporting are used to estimate those "in care," measured as the percentage of diagnosed individuals who had at least one documented viral load or CD4+ test within the observation year, and "retained in care," measured as the percentage of diagnosed individuals who had two or more documented viral load or CD4+ tests, performed at least three months apart in the observed year.	
Prescribed ART	MMP data are used to estimate the number and percentage of people receiving medical care and who have a documented ART prescription in their medical records in the observed year.	
Viral Suppression	MMP or NHSS data from the states and D.C. that have complete laboratory reporting can be used to estimate the percentage of individuals whose most recent HIV viral load within the observed year was less than 200 copies/mL.	

How the Continuum Is Used to Monitor Progress and Identify Needs

By tracking the proportion of people living with HIV who are engaged in each of the five separate steps of the HIV care continuum, federal and state health agencies can identify gaps and, over time, pinpoint how, where and when to intervene to improve outcomes along the continuum. This will ultimately help us break the cycle of HIV transmission and reduce new infections, while improving the health of those living with HIV.

At the national level, the HIV care continuum is used to inform decisions about how best to prioritize and target available resources and to monitor national progress in the response to HIV.

At the state and local levels, jurisdictions can use the HIV care continuum – compiled using local data – to determine where improvements are most needed and target resources accordingly.

CDC is undertaking many initiatives to improve outcomes at every stage of the HIV care continuum, including:

- *Directly funding health departments and community-based organizations (CBOs)* – to increase HIV testing, improve linkage to care, and help people receive and stay on treatment in communities bearing the greatest HIV burden.
- *Providing technical assistance* – to help CBOs develop the tools and skills to successfully implement effective HIV prevention activities for people living with HIV in their communities and to help each state develop a HIV care continuum that addresses its needs.
- *Supporting the use of surveillance data* – to identify people out of care and link them to and engage them in care.
- *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* – to support health care providers in delivering HIV testing, care, treatment and prevention services.
- *Launching educational campaigns* – to help health care providers integrate simple prevention approaches into routine care for people living with HIV.