



# HIV CARE CONTINUUM

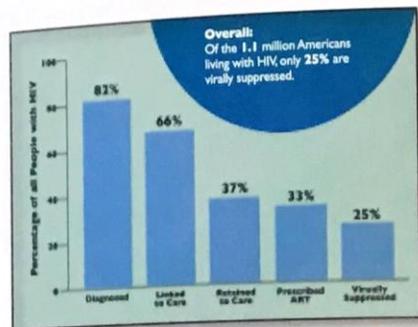
THE CONNECTION BETWEEN HOUSING AND IMPROVED  
OUTCOMES ALONG THE HIV CARE CONTINUUM



**HOPWA**  
Housing Opportunities  
for Persons With AIDS



## THE HIV CARE CONTINUUM INITIATIVE



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**The HIV Care Continuum**

After more than 30 years of sustained effort and medical breakthroughs, the end of the United States AIDS epidemic is now possible. While there is still no cure for HIV infection, targeted HIV prevention strategies and early antiretroviral (ARV) treatment have the potential to dramatically reduce new infections and promote optimal health for all people living with HIV/AIDS (PLWHA). Consistent ARV treatment suppresses the virus and enables PLWHA to live longer and stay healthy. Viral suppression has been found to reduce the risk of transmitting HIV to others by 96%.<sup>1</sup>

In 2010, the Obama Administration reinvigorated the U.S. HIV/AIDS response with the release of the first National HIV/AIDS Strategy.

**The National HIV/AIDS Strategy Goals Include**

- Reducing new HIV infections
- Increasing access to care and optimizing health outcomes for people living with HIV
- Reducing HIV-related disparities and health inequities

National focus has turned to the HIV Care Continuum Initiative established by President Obama in July 2013 to further mobilize and coordinate federal efforts to meet the goals of the National HIV/AIDS Strategy.<sup>2</sup> The Initiative provides an important new framework to identify points where people with HIV are being lost to care and ways to monitor and evaluate the effectiveness of interventions. The HIV Care Continuum shows significant gaps in engagement at each stage of HIV care in the United States, with the result that only one-quarter of all HIV-positive persons have the virus controlled through adherence to ARV medications. To maximize viral suppression, HIV service and housing providers must focus on filling each gap in the HIV Care Continuum.

At least half of Americans living with HIV experience homelessness or housing instability following diagnosis.

See, e.g., Adala, et al. (2007). Housing need, housing assistance, and connection to medical care. *AIDS & Behavior*, 11(6)Supp 2: S101-S115.

**HUD and the HIV Care Continuum Initiative**

The U.S. Department of Housing and Urban Development (HUD) is a core partner in the HIV Care Continuum Initiative, as targeted housing assistance has been a key component of the Federal HIV response since the Housing Opportunities for Persons With AIDS (HOPWA) program was established in 1990. The Initiative calls on HUD and other Federal agencies to use the HIV Care Continuum as a tool to identify gaps in HIV prevention and care, improve outcomes, and monitor progress.

HUD implementation of the HIV Care Continuum Initiative will include new technical assistance, guidance, and tools to help providers of HUD-funded housing programs evaluate and demonstrate the impact of housing assistance on HIV prevention and treatment outcomes. This report outlines the link between housing status and HIV health outcomes and the role of housing assistance as a critical enabler of effective care at each step in the HIV Care Continuum.

In 2013, an Executive Order instructed agencies implementing the Strategy to prioritize the HIV continuum of care as the framework for accelerating efforts to increase HIV testing, services, and treatment along the continuum.

**The HIV Care Continuum Initiative will:**

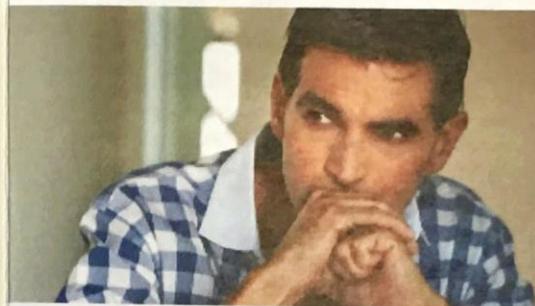
- Support further integration of HIV prevention and care efforts;
- Promote expansion of successful HIV testing and service delivery models;
- Encourage innovative approaches to addressing barriers to accessing testing and treatment; and
- Ensure that federal resources are appropriately focused on implementing evidence-based interventions that improve outcomes along the HIV Care Continuum.

**FOOTNOTES**

1. Cohen MS, et al. (2011). Prevention of HIV-1 infection with early antiretroviral therapy. *N Engl J Med*, 365: 493-505.
2. Office of National AIDS Policy (ONAP). (2013). *Accelerating Improvements in HIV Prevention and Care in the United States through the HIV Care Continuum Initiative*. The White House, July 15, 2013. Available at <http://www.aids.gov/federal-resources/national-hiv-aids-strategy/hiv-care-continuum-initiative-fact-sheet.pdf>

## HOUSING'S IMPACT ON HIV HEALTH OUTCOMES ALONG THE CARE CONTINUUM

This focus on the HIV Care Continuum is both a challenge and an exciting new opportunity for HIV and homeless housing providers. For years, research and practice have demonstrated that safe, stable housing provides the essential foundation for successful management of HIV and other chronic diseases. However, many housing providers and systems currently lack the data or the capacity to track client's medical outcomes along the Continuum.



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The existing research linking housing status to HIV health outcomes supports new strategic collaborations between housing and health providers to better integrate care for PLWHA that experience homelessness and unstable housing. Data showing that housing interventions improve outcomes along the HIV Care Continuum can also be used to make the case for innovative new funding for housing supports as a component of cost-effective health care for chronically ill patients of managed care, home health, and other accountable care entities.

It is now well understood that effective systems to prevent and treat HIV must take into account the social determinants of health—conditions of peoples' lives that directly or indirectly affect their vulnerability to HIV infection and their ability to benefit from HIV treatment.<sup>3</sup> A strong body of research findings, including an analysis conducted by the Centers for Disease Control and Prevention (CDC), show that housing status is a stronger predictor of HIV health outcomes than individual characteristics such as gender, race, age, drug and alcohol use, mental health issues and receipt of social services.<sup>4</sup> As noted by researchers from the CDC, "this is an important finding, as it indicates that housing itself may improve the health of PLWHA."<sup>5</sup> Housing also plays a significant role in HIV prevention. A multi-state study found that over time, homeless and unstably housed PLWHA who improved their housing status reduced risk

behaviors by half, while those whose housing status worsened were four times as likely to increase risks through activities such as sex exchange.<sup>6</sup> Persons experiencing homelessness are at heightened risk of acquiring HIV, with rates of new infections as high as 16 times the rate in the general population.<sup>7</sup> Even after accounting for other factors such as substance use, mental health and access to services, the condition of homelessness is independently associated with increased rates of behaviors that can transmit HIV.<sup>8</sup>

Evidence shows that housing assistance improves HIV health outcomes at each stage of the HIV Care Continuum. Housing supports increase stability and connection to care for PLWHA experiencing homelessness or unstable housing, and are consistently linked to improved HIV treatment access, continuous care, better health outcomes, and reduced risk of ongoing HIV transmission.<sup>9</sup>

Housing providers with the ability to track, evaluate, and demonstrate improvement in HIV Care Continuum outcomes for assisted households will be in the strongest position to participate in community planning for integrated HIV care systems and to advocate for continued and expanded housing resources.

**FOOTNOTES**

1. Dean HD & Jensen KA. (2010). Addressing Social Determinants of Health in the Prevention and Control of HIV/AIDS, Viral Hepatitis, Sexually Transmitted Infections, and Tuberculosis. *Public Health Rep*, 125(Suppl 4): 1-5.
2. Adala, AA, et al. (2012). *Housing status and the health of people living with HIV/AIDS: A systematic review*. Presented at the Xth International AIDS Conference, Washington, D.C., July 2012; Lower CA, et al. (2007). The effects of housing status on health-related outcomes in people living with HIV: A systematic review of the literature. *AIDS and Behavior*, 11(6)Supp 2: S85-S100.
3. Kessler D, et al. (2007). Health status, health care use, medication use, and medication adherence in homeless and housed people living with HIV/AIDS. *Am J Public Health*, 97(12): 2238-2245.
4. Adala, A, et al. (2005). Housing status and HIV risk behaviors: Implications for prevention and policy. *AIDS and Behavior*, 9(3): 251-265.
5. Kerkut B, et al. (2005). *The health of homeless adults in New York City: A report from the New York City Departments of Health and Mental Hygiene and Homeless Services*. Available at [http://www.nyc.gov/html/doh/downloads/gen/1005/1005\\_12.pdf](http://www.nyc.gov/html/doh/downloads/gen/1005/1005_12.pdf)
6. Kessler D, et al. (2008). Housing status and HIV risk behaviors among homeless and housed persons with HIV. *JAIDS*, 49(4): 451-455; Adala, et al. 2005.
7. Adala, et al. 2012; Leavitt et al. 2007.

## THE HIV CARE CONTINUUM

### STEP 1: HIV TESTING AND DIAGNOSIS

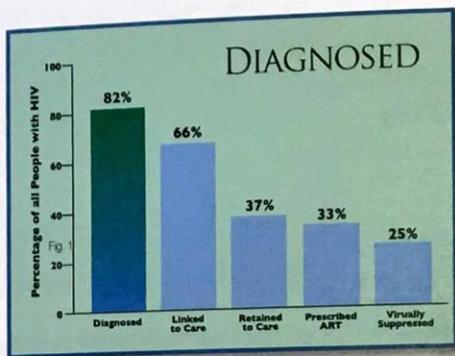


Fig 1

**Diagnosed** (Tested and diagnosed with HIV infection)

Timely HIV testing is the first critical step in effective HIV care and prevention. Nearly one in five Americans (20%) with HIV are unaware of their diagnosis, and far too many PLWHA in the U.S. are diagnosed too late in the course of HIV infection to fully benefit from available life-extending treatment. (See Figure 1.) Undiagnosed PLWHA are not accessing the care they need to stay healthy and can unknowingly pass the virus on to others. (See Figure 1.)



The evidence shows that housing instability is linked to delayed HIV diagnosis and to increased risks of acquiring and transmitting HIV infection. One study found that men who have sex with men (MSM) and experience homelessness or housing instability are over 15 times more likely than stably housed MSM to delay HIV testing.<sup>10</sup> Housing programs also provide an important opportunity to offer HIV testing. The U.S. Preventive Services Task Force recommends HIV screening for all persons aged 15 to 65, but only about half of all Americans have ever been tested, including many at highest risk. Fear of stigma and discrimination is still a factor discouraging testing, including fear of exclusion from housing or shelter. Partnerships between HUD's housing programs and other service organizations present important opportunities for HIV education and testing to support HIV prevention, timely HIV diagnosis, and linkage to ongoing medical care for both HIV positive and HIV negative persons.

### STEP 2: LINKAGE TO CARE FOR THOSE WHO TEST HIV POSITIVE

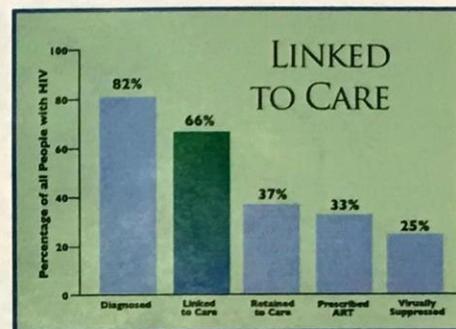


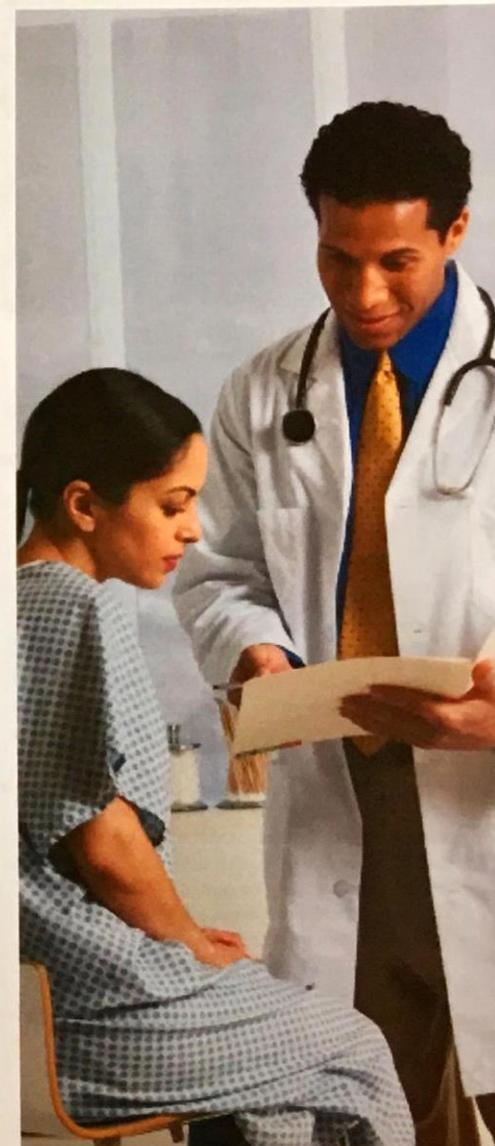
Fig 2

**Linked to Care** (Linked to HIV medical care within 3 months after diagnosis)

Every person diagnosed with HIV infection should be connected quickly (with a visit within three months of diagnosis) to an HIV healthcare provider who can offer treatment and counseling to promote health and reduce the risk of ongoing HIV transmission. Currently, only 66% of all PLWHA in the U.S. are being linked to care. (See Figure 2.)

Since housing is a basic need, housing-related service providers may have a unique opportunity to offer HIV testing and linkage to care for at-risk persons not connected to other systems of care.

For PLWHA, homelessness and unstable housing are conditions strongly associated with inadequate HIV health care, including failure to connect with a primary care provider.<sup>11</sup> One large study found that over a 12-year period, PLWHA who lacked stable housing were significantly more likely than those who were stably housed to delay entry into care.<sup>12</sup> An access to care program for persons newly diagnosed with HIV was able to link only 25% of participants with unstable housing to primary care, compared to 55% of persons with stable housing.<sup>13</sup> Researchers in San Francisco who used HIV surveillance data to examine engagement in care for all persons diagnosed with HIV between 2009 and 2010 found that homelessness or unknown housing status predicted not entering HIV care within six months of diagnosis.<sup>14</sup>



**FOOTNOTES**

- 10.) Nelson, K.M., et al. (2010). Why the Wait? Delayed HIV Diagnosis among Men Who Have Sex with Men. *J Urban Health* 87(4): 642-655.
- 11.) Kidder, et al. 2007.
- 12.) Adala, et al. 2007.
- 13.) Gardner, L.L., et al. (2009). Demographic, psychological, and behavioral modifiers of the Antiretroviral Treatment Access Study (ARTAS) intervention. *AIDS Patient Care & STDs* 23(9): 735-742.
- 14.) Muthulingam, D., et al. (2013). Disparities in Engagement in Care and Viral Suppression among Persons with HIV. *J Acquir Immune Defic Syndr* 63(1): 112-119.
- 15.) Adala, et al. 2007.

## STEP 5: ACHIEVING AND MAINTAINING VIRAL SUPPRESSION THROUGH ARV ADHERENCE

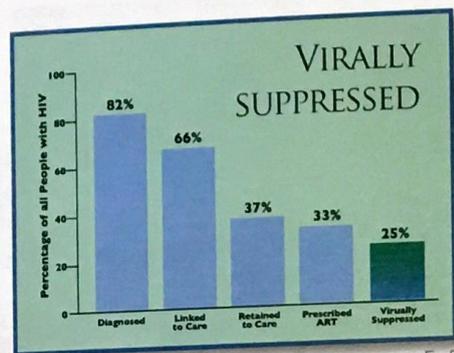


Fig 5

**Virally Suppressed** (Most recent viral load undetectable or  $\leq 200$  copies/mL)

For most PLWHA, taking ARVs as prescribed reduces the amount of HIV virus in the blood to a very low level. Viral suppression optimizes the health of PLWHA and dramatically reduces their risk of transmitting the virus to others. Unfortunately, only 25 percent of PLWHA in the U.S. are fully benefiting from available treatments by successfully keeping the HIV virus under control.

PLWHA experiencing homelessness are less likely to be virally suppressed, have lower CD4 counts and are in worse overall physical and mental health, compared to otherwise similar PLWHA who are stably housed.<sup>26</sup> A recent study of all 862 persons newly diagnosed with HIV in San Francisco over a two-year period found that homelessness at diagnosis independently predicted failure to achieve viral suppression.<sup>27</sup> In a U.S. multi-site study of injection drug users (IDUs) receiving ARV treatment, those with stable housing were almost 3.7 times more likely than homeless participants to achieve viral suppression.<sup>28</sup>

Intervention research demonstrates that housing assistance works to improve rates of viral suppression among PLWHA experiencing homelessness or housing instability. A study of the Chicago Housing for Health Project (CHHP) found that homeless HIV-positive participants who received an immediate housing placement were twice as likely after twelve months to be virally suppressed as HIV-positive study participants randomly assigned to continue to receive the usual care (as defined by receiving access to the range of shelter, case management and housing options usually available

to homeless HIV positive persons at hospital discharge) available in their community.<sup>29</sup> Outcomes of the Housing and Health (H&H) Study, conducted by the CDC in partnership with HUD's Office of HIV/AIDS Housing to assess the impact of HOPWA housing vouchers shows that participants who continued to experience homelessness during the study period were significantly less likely to achieve viral suppression than persons who did not report homelessness.<sup>30</sup>



Supportive housing programs improve rates of viral suppression and other health outcomes for PLWHA despite complex social and behavioral health needs. A community residence for formerly homeless PLWHA enabled 69% of residents struggling with substance use addiction to achieve viral suppression.<sup>31</sup> The San Francisco Department of Public Health found that placement in a low-threshold supportive housing program decreased mortality by 80% over a five-year period among PLWHA who were homeless at the time of an AIDS diagnosis.<sup>32</sup>

**Studies consistently find homelessness and housing instability are directly linked to higher viral loads and failure to achieve or sustain viral suppression, even after controlling other factors known to impact treatment effectiveness such as substance use and mental health needs.**<sup>33</sup>

## THE PUBLIC COSTS AND BENEFITS OF TARGETED HIV HOUSING SUPPORTS

Recent studies of HIV housing interventions also show that housing assistance is a cost-effective way to improve HIV health outcomes. These economic evaluations weigh the public costs of housing assistance against the savings in public spending that result from reducing avoidable emergency and inpatient care, preventing costly new HIV infections and reducing reliance on expensive crisis systems such as jails and shelters. Such cost analyses have found that savings in other areas of public spending more than offset the cost of housing programs.<sup>34</sup>

For example, Housing and Health (H&H) Study researchers used study outcomes to calculate the cost-utility of housing assistance as an HIV health intervention, taking into account the cost of the housing services, savings from prevented HIV transmissions and reductions in emergency medical costs among other factors.<sup>35</sup>



### FOOTNOTES

- 26.) Kidder, et al. 2007.
- 27.) Muthulingam, et al. 2013.
- 28.) Knowlton, A., et al. (2006). Individual, interpersonal, and structural correlates of effective HAART use among urban active injection drug users. *JAIDS*, 41(4): 486-492.
- 29.) Buchanan, D.R., et al. (2009). The Health Impact of Supportive Housing for HIV-Positive Homeless Patients: A Randomized Controlled Trial. *Am J Public Health*, 99:4.
- 30.) Wolke, R. J., et al. (2010). Randomized trial of the effects of housing assistance on the health and risk behaviors of homeless and unstably housed people living with HIV. *AIDS & Behavior*, 14(3): 493-503.
- 31.) Hawk, M. & Davis, D. (2012). The effects of a harm reduction housing program on the viral loads of homeless individuals living with HIV/AIDS. *AIDS Care*, 24(5): 577-582.
- 32.) Schwartz, S.K., et al. (2009). Impact of housing on the survival of people with AIDS. *BMC Public Health* 9: 220. Available at: <http://www.biomedcentral.com/1471-2458/9/220>.
- 33.) Airdala, et al. 2012; Leaver, et al. 2007; Kidder, et al. 2007.
- 34.) Basu, A., et al. (2012). Comparative Cost Analysis of Housing and Case Management Program for Chronically Ill Homeless Adults Compared to Usual Care. *Health Services Research* 47(1 Pt 2): 523-543.
- 35.) Holtgrave, D.R., et al. (2012). Cost Utility Analysis of the Housing and Health Intervention for Homeless and Unstably Housed Persons Living with HIV/AIDS & Behavior 17(5): 1626-1631.

## TRACKING YOUR HOPWA HOUSING'S IMPACT ON THE LOCAL CONTINUUM

The HIV Care Continuum is an important new tool to evaluate the effectiveness of current systems of care to ensure the best allocation of scarce public resources.

At the federal level, government agencies are now using the HIV Care Continuum to inform discussions about how to best prioritize and target resources.<sup>36</sup> Housing interventions enable PLWHA experiencing homelessness or housing instability to achieve stability, improve HIV health outcomes, and reduce overall public costs. Local HIV housing providers also have a critical role in the rollout of the HIV Care Continuum Initiative in their communities, by demonstrating stable housing as a key HIV prevention and care strategy in coordinated HIV services and care.

It is critical to ensure that housing resources are viewed and funded as a core component of cost-effective HIV health care delivery. Homeless, housing, and health care providers have an opportunity to enhance community-level collaboration to ensure clients receive the broad scope of needed services. Coordination strategies might include:

- Organizing discussions between providers from the healthcare, housing, and supportive service systems of care to identify forms of primary care and behavioral health services that best link with housing assistance programs.
- Enhancing the public health system to offer coordinated care and prevention services to improve the health of persons experiencing homelessness and unstable housing.
- Educating local medical providers about the importance of assessing housing status and making appropriate referrals for housing supports;
- Collecting housing status as part of all assessments and intake processes including medical assessments;
- Better coordinating and aligning housing services with clinical care to demonstrate improved health outcomes, better service utilization, and lowered costs;
- Determining how housing services fit into new care coordination and payment models;

- Operationalizing new federal housing-related indicators of HIV care to identify unmet housing need for appropriate referrals and to evaluate the impact of housing on health care utilization and costs;
- Identifying and taking advantage of new opportunities to fund, deliver and report outcomes of housing services as part of coordinated and accountable HIV care systems.

The New York City Department of Health and Mental Hygiene (NYC DOHMH) has created an HIV Care Continuum for the NYC HOPWA program, using surveillance data to assess health outcomes among HOPWA beneficiaries in New York City. NYC DOHMH reported that in 2011, 99% of HOPWA beneficiaries were linked to HIV care, 95% were retained in care, and 87% were presumed to have ever started on ARV medications. Most importantly, 62% of NYC HOPWA beneficiaries were virally suppressed compared to 44% of persons diagnosed with HIV/AIDS City-wide, and only 30% of those diagnosed with HIV/AIDS in the U.S. (different methods used nationally). NYC DOHMH is actively researching the role of HOPWA housing and its impact on health outcomes.

### Conclusion

For PLWHA experiencing homelessness and housing instability, improving outcomes on the HIV Care Continuum will require attention to housing need, including access to HUD housing programs. Two recent studies that ranked factors (including ARV treatment) affecting the health status of HIV-infected homeless and unstably housed women and men found that unmet subsistence needs (i.e., food, hygiene, shelter) had the strongest impact on overall physical and mental health. As the authors observed, "Impoverished persons will not fully benefit from progress in HIV medicine until these barriers are overcome, a situation that is likely to continue fueling the US HIV epidemic."<sup>37</sup>

“Stable housing is critical to promoting full engagement in HIV care from diagnosis through attaining a suppressed viral load. Through these mechanisms, stable housing helps contribute to national HIV care and prevention of transmission goals.”

- Edward M. Gardner, MD

**Dr. Edward Gardner** is an Infectious Diseases/HIV physician at Denver Public Health and Associate Professor of Medicine at the University of Colorado Denver, and conducts research in engagement in HIV care and adherence to antiretroviral therapy. The **HIV Care Continuum** model was first described by Dr. Gardner and colleagues in a widely-cited article, *The Spectrum of Engagement in HIV Care and its Relevance to Test-and-Treat Strategies for Prevention of HIV Infection*. Dr. Gardner et. al. led the way in reviewing current HIV/AIDS research to develop estimates of how many individuals with HIV in the U.S. are engaged at various steps in the continuum of care from diagnosis through viral suppression. CDC conducted further analysis with similar findings and updated the HIV Care Continuum which became the focus of President Obama's Executive Order establishing the *HIV Care Continuum Initiative* as the next step in implementing the National HIV/AIDS Strategy.

### FOOTNOTES

36.) See <http://blog.hiv.gov/2012/07/hiv-aids-treatment-cascade-helps-identify-gaps-in-care-retention.html#sthash.C6AvOSLQpJ>

37.) Riley, et al. 2012; Riley, E. D., et al. (2011). Basic subsistence needs and overall health among human immunodeficiency virus-infected homeless and unstably housed women. *Am J Epidemiol*, 174(5): 515-522.

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# QUICK FACTS: THE IMPACT OF STABLE HOUSING ON HEALTH FOR PLWHA

## **Why Housing?**

- For persons who lack a safe, stable place to live, housing assistance is a proven, cost-effective health care intervention.
  - Stable housing has a direct, independent, and powerful impact on HIV incidence, health outcomes, and health disparities.
  - Housing status is a more significant predictor of health care access and HIV outcomes than individual characteristics, behavioral health issues or access to other services.
- 

## **Compared to stably housed persons, persons who are homeless or unstably housed:**

- Are more likely to become HIV infected;
  - Are more likely to be diagnosed late, after infection has progressed to HIV illness;
  - Are more likely to delay entry into HIV care;
  - Experience higher rates of discontinuous health care;
  - Are less likely to be prescribed ARV treatment;
  - Are less likely to achieve sustained viral suppression;
  - Have worse health outcomes, with greater reliance on emergency and inpatient care; and
  - Experience higher rates of HIV-related mortality.
- 

## **Homeless/unstably housed people with HIV whose housing status improves:**

- Reduce behaviors that can transmit HIV;
- Increase rates of HIV primary care visits, continuous care, and care that meets clinical practice standards;
- Are more likely to return to care after drop out;
- Are more likely to be receiving ARV treatment;
- Are more likely to be virally suppressed;
- Reduce avoidable use of expensive emergency and inpatient health care; and
- Use less public resources even taking into account housing supports.