

# HIV/ Hepatitis C Virus Co-Infection Infobrief

Human Immunodeficiency Virus (HIV)/ Hepatitis C Virus (HCV) co-infection is a growing epidemic within the population of HIV-positive individuals<sup>[1-4]</sup>. Understanding both the prevention and treatment options has become essential as HIV transitions to a chronic disease management model. It is extremely important for organizations to make sure that patients know both their HIV and HCV statuses and that they receive regular care and treatment when necessary. In fact, it is the standard of care that all HIV-positive individuals be screened for HCV during their initial work-up of their HIV diagnosis<sup>[13-14]</sup>. For those who test negative for HCV but are at high-risk of HCV co-infection, annual screenings are recommended<sup>[13-14]</sup>. Primary health-care providers (PCP) and other clinicians should have knowledge of the most up-to-date guidelines for HCV screening and testing in HIV positive patients, which can be found at [www.aidsinfo.nih.gov/guidelines](http://www.aidsinfo.nih.gov/guidelines)<sup>[13-14]</sup>.

It is essential that clinical care providers be up-to-date on the science, screening recommendations, and treatment options to provide the best services for their patients. This infobrief is designed to help increase health care organization staff's knowledge on the important issues around HCV. If your organization requires additional training or TA to help make sure all staff is up-to-date on the science and treatment options on this topic please our website at [HIVCBAcenter.org](http://HIVCBAcenter.org). The training staff at CAI can work with providers to make sure they ask appropriate questions to 1) determine symptoms, and 2) evaluate behavior and lifestyle choices that can place an individual at high-risk of HCV co-infection<sup>[5, 7-8]</sup>. It is important to keep in mind that the best prevention methods for HCV/HIV co-infection are knowledge and early screening<sup>[1, 7, 13, 21]</sup>. The Capacity-Building Assistance project can help organizations achieve both.

**For more resources and tools to increase your organizations knowledge on HIV/HCV Co-infection detection, management and treatment, contact us at [CAI @ HIVCBAcenter.org](mailto:CAI@HIVCBAcenter.org).**

**Health care organizations can also request free training to help staff take accurate sexual histories and conduct comprehensive risk screenings. Visit [HIVCBAcenter.org](http://HIVCBAcenter.org) to request these and other trainings.**

*This publication was supported by the Grant or Cooperative Agreement Number, U65PS004408, funded by the Center for Disease Control and Prevention. Its contents are solely the responsibility of the authors and do not necessarily represent the official views of the Center for Disease Control and Prevention or the Department of Health and Human Services.*



High-Impact HIV Prevention  
Capacity Building Assistance  
for Healthcare Organizations

Developed by



A  CAI Center of Excellence

## **What is HIV/Hepatitis C Virus Co-infection?**

Human Immunodeficiency Virus (HIV)/ Hepatitis C Virus (HCV) co-infection is a growing epidemic within the population of HIV individuals<sup>[1-4]</sup>. Both HIV and HCV are transmitted via exposure to infected blood or through sexual contact<sup>[5,6]</sup>. HIV attacks the immune system and HCV attacks the liver,<sup>[5]</sup> and an infection of both viruses can lead to serious health complications including significant morbidity or mortality<sup>[6]</sup>. HCV infection is the leading cause of non-AIDS related death in HIV-infected individuals in regions with access to combination antiretroviral therapy (cART)<sup>[1]</sup>.

HIV can more than triple the rate of liver-related disease and liver related deaths in HCV individuals<sup>[5]</sup>. When compared to mono-HCV infected individuals, HCV/HIV co-infected individuals have shown increased liver toxicity, increased liver fibrosis progression leading to cirrhosis, and an increase in HCV viral load<sup>[2, 7, 8-9]</sup>. A cohort study between 1997 and 2010, found that HIV/HCV co-infected patients had an 80% higher rate of liver cirrhosis than those with only Hepatitis C infection<sup>[10]</sup>.

## **Magnitude of HIV/HCV Co-infection**

There are an estimated 35 million HIV-positive individuals worldwide, of which 7-million (20%) are co-infected with HCV<sup>[1-5]</sup>. The HIV/HCV epidemic has been increasing for the last decade, with North Europe being a region of rapid increase<sup>[7]</sup>. An Amsterdam cohort study found an increase of HCV infection in HIV positive men who have sex with men (MSM) from 0.8 cases per 1000 person-years between 1984-1999, to 8.7 cases per 1000 person-years between 2000-2003<sup>[7]</sup>. Within the United States, there are an estimated 240,000 out of 800,000 (30%) HIV-positive individuals who are HIV/HCV co-infected<sup>[1-5]</sup>.

The rising rates of HCV/HIV co-infection are greatly seen in populations of HIV positive, middle-aged, white, non-Hispanic MSM<sup>[7]</sup>. Also, within the population of Injection drug users (IDU) who are HIV positive, 80% are co-infected with HCV<sup>[5]</sup>. Although HCV co-infection is more common in HIV positive men, HIV positive women can also be infected with HCV.

## **Best Practices for HIV/HCV Co-infection Detection**

All HIV positive individuals should be screened for HCV within onset of their HIV diagnosis<sup>[13-14]</sup>. For those who test negative for HCV but are at high-risk of HCV co-infection, annual screenings are recommended<sup>[13-14]</sup>. Primary health-care providers (PCP) and health clinicians should have knowledge of the most up-to-date guidelines for HCV screening and testing in HIV positive patients, which can be found at [www.aidsinfo.nih.gov/guidelines](http://www.aidsinfo.nih.gov/guidelines)<sup>[13, 14]</sup>. Providers ask appropriate questions to 1) determine symptoms, and 2) evaluate behavior and lifestyle choices that can place an individual at high-risk of HCV co-infection<sup>[6,13-14]</sup>. Although less than 20% of HIV/HCV co-infected individuals show physical symptoms it is important that the PCP ask about any symptoms within the last 30 days<sup>[5, 14]</sup>. Symptoms may include low-grade fever, nausea, jaundice, dark urine, and vomiting<sup>[14]</sup>. PCPs should ask questions about high-risk behaviors and lifestyle practices; such as the sharing of injectable or non-injectable drugs, the practice of unprotected sex, anal sex, and/or use of sex toys<sup>[5, 7, 13-14]</sup>.



High-Impact HIV Prevention  
Capacity Building Assistance  
for Healthcare Organizations

The Center for Disease Control and Prevention (CDC) recommends a sensitive enzyme immunoassay (EIA) test should be used in order to detect HCV antibodies <sup>[13-16]</sup>. If antibodies are detected, a HCV RNA qualitative test (such as nucleic acid testing, NAT, for HCV) must be performed to confirm the EIA test and to see whether HCV is present in the bloodstream <sup>[13-16]</sup>. Lastly, acute HCV infection, which is the first three months of HCV infection, can cause false-negatives in HCV anti-body test <sup>[7, 14]</sup>. Therefore, it is recommended to also to perform a test of liver functions especially to assess any elevation of alanine aminotransferase (ALT) or elevation of aspartate aminotransferase (AST) both of which determine liver damage <sup>[14-16]</sup>, though this mechanism may lack a degree of sensitivity <sup>[24]</sup>.

## **Best Practices in HIV/HCV Co-infection Management and Treatment Measures**

Quality standards for managing and monitoring HIV/HCV co-infection have emerged throughout primary care settings. Accordingly, HCV treatments have enhanced the capacity to control infection rates by encouraging clearance of the virus in many individuals <sup>[5-7, 14-16]</sup>. Findings suggest that liver fibrosis progresses rapidly among those with low CD4 counts <sup>[17]</sup>. In all scenarios, treatment initiation should be pursued promptly following confirmation of a positive HIV/HCV diagnosis <sup>[6, 17]</sup>. The use of anti-retroviral therapy (ART) on HIV/HCV co-infected individuals is recommended by the National Institute of Health (NIH) to reduce the chances of insult to the liver, enhance immune function and minimize HIV induced inflammation <sup>[14]</sup>. A 2014 study found an 80% increase in the rate of liver cirrhosis amongst HIV/HCV co-infected patients. That rate has been found to lower by 20% when co-infected patients were on an ART <sup>[10]</sup>.

Although some studies show positive outcomes, achieving optimal treatment outcomes remain complex due to adherence and tolerability <sup>[3, 4]</sup>. Patients may need to take frequent and long-term dosages and maintain follow-up protocols which can inhibit them from the functions of their daily lives <sup>[6, 17]</sup>. Treatment administration also presents challenges regarding drug-drug interactions and agent toxicity, given that certain substrate inhibitors have been shown to have interactions with ARTs <sup>[17]</sup>.

Recently, the FDA approved a new drug combination with more promising results for the HIV/HCV co-infected population: a Sofosbuvir/Ledipasvir pill. A small trial from the Gilead Sciences says that the “combination pill of Sovaldi (Sofosbuvir) and Ledipasvir is poised to boast a 100 percent success rate in curing hepatitis C virus (HCV) among those co-infected with HIV”<sup>[1]</sup>. Patients treated with this pill in combination with various HIV ARVs proved to show no serious symptoms, kidney toxicity, nor adverse side effects <sup>[1]</sup>. Researchers continue to collect data on this research. The future treatment plans for HIV/HCV co-infected individuals look promising due to the ongoing clinical trials and research devoted to drug advancements.

## **Benefits of HIV/HCV Co-infection Early Identification and Treatment**

The best prevention methods for HCV/HIV co-infection are knowledge and early screening <sup>[1, 7, 13, 21-22]</sup>. Practice of both methods can add years to an HIV-positive individual’s life, and can provide opportunities for improved outcomes in controlling infection <sup>[1, 8, 21, 23]</sup>. A 2006 study found that the rate of death was higher in HIV patients that were not screened for HCV (52.4/1000 patient-years) than for those who were screened for HCV (22.9/1000 patient-years) <sup>[22]</sup>.



High-Impact HIV Prevention  
Capacity Building Assistance  
for Healthcare Organizations

The CDC and the NIH recommend that co-infected individuals should consult a health provider with expertise in managing treatments for HIV and HCV co-infections <sup>[5-6,14]</sup>. Crafting proper management approaches should ideally be pursued with the intention of exploring options that are most feasible given past medical history and stage of disease progression. Hence, gaining strides towards optimal prevention and treatment will require continuously educating clinicians and PCPs on new HIV/HCV co-infection screening and treatment guidelines <sup>[7,13, 22]</sup>.



High-Impact HIV Prevention  
Capacity Building Assistance  
for Healthcare Organizations



## REFERENCES

1. Taylor, L., Swan, T., Mayer, K.H. (2012). HIV co-infection with Hepatitis C virus: Evolving epidemiology and treatment paradigms. *Clinical infectious diseases* 55.S1, S33-42.
2. Soriano, V.; Vispo, E.; Labarga, P.; Medrano, J.; Barreiro, P. (2010). Viral Hepatitis and HIV co-infection. *Antiviral Research* 85, 303-315.
3. Sulkowski, M. S., Mast, E. E., Seeff, L. B., & Thomas, D. L. (2000). Hepatitis C virus infection as an opportunistic disease in persons infected with human immunodeficiency virus. *Clinical Infectious Diseases*, 30(Supplement 1), S77-S84.
4. Sherman, K. E., Rouster, S. D., Chung, R. T., & Rajcic, N. (2002). Hepatitis C virus prevalence among patients infected with human immunodeficiency virus: A cross-sectional analysis of the US adult AIDS Clinical Trials Group. *Clinical infectious diseases*, 34(6), 831-837.
5. Centers for Disease Control and Prevention (2014): HIV and Viral Hepatitis Factsheet. Retrieved December 1, 2014: <http://www.cdc.gov/hepatitis/Populations/PDFs/HIVandHep-FactSheet.pdf>
6. Centers for Disease Control and Prevention (2002): IDU/HIV Prevention, Hepatitis C virus and HIV Co-infection. Retrieved December 1, 2014 [http://www.cdc.gov/idu/hepatitis/hepc\\_and\\_hiv\\_co.pdf](http://www.cdc.gov/idu/hepatitis/hepc_and_hiv_co.pdf)
7. Fierer, D. S. (2010). Epidemic of sexually transmitted hepatitis C virus infection among HIV-infected men. *Current infectious disease reports*, 12(2), 118-125.
8. Sulkowski, M. S., Moore, R. D., Mehta, S. H., Chaisson, R. E., & Thomas, D. L. (2002). Hepatitis C and progression of HIV disease. *JAMA*, 288(2), 199-206.
9. Ghosn, J., Deveau, C., Goujard, C., Garrigue, I., Saïchi, N., Galimand, J. ... & Chaix, M. L. (2006). Increase in hepatitis C virus incidence in HIV-1-infected patients followed up since primary infection. *Sexually transmitted infections*, 82(6), 458-460.
10. Re, V. L., Kallan, M. J., Tate, J. P., Localio, A. R., Lim, J. K., Goetz, M. B., ... & Justice, A. C. (2014). Hepatic decompensation in antiretroviral-treated patients co-Infected with HIV and hepatitis C virus compared with hepatitis C virus–mono-infected patients: A cohort study. *Annals of internal medicine*, 160(6), 369-379.
11. Fox, J., Nastouli, E., Thomson, E., Muir, D., McClure, M., Weber, J., & Fidler, S. (2008). Increasing incidence of acute hepatitis C in individuals diagnosed with primary HIV in the United Kingdom. *AIDS*, 22(5), 666-668.
12. Centers for Disease Control and Prevention (2012): HIV surveillance report: Diagnoses of HIV infection and AIDS in the United States and Dependent Areas. Retrieved December 1, 2014: [http://www.cdc.gov/hiv/pdf/statistics\\_2012\\_HIV\\_Surveillance\\_Report\\_vol\\_24.pdf](http://www.cdc.gov/hiv/pdf/statistics_2012_HIV_Surveillance_Report_vol_24.pdf)
13. Jonckheere, S., Vincent, A., Belkhir, L., Wilmes, D., Vandercam, B., & Yombi, J. C. (2013). Adherence to screening guidelines for hepatitis C among HIV-positive patients. *AIDS patient care and STDs*, 27(6), 317-319.
14. Department of Health and Human Services. (2014) Panel on Antiretroviral Guidelines for Adults and Adolescents. Guidelines for the use of antiretroviral agents in HIV-1-infected adults and adolescents. Retrieved December 1, 2014: <http://aidsinfo.nih.gov/contentfiles/lvguidelines/AdultandAdolescentGL.pdf>. Sect J5.
15. US Department of Veterans (2014): Viral Hepatitis, Overview of Hepatitis C. Retrieved December 1, 2014: <http://www.hepatitis.va.gov/patient/hcv/diagnosis/labtests-overview.asp>.
16. Centers for Disease Control and Prevention (2012): The ABC's of Hepatitis Fact Sheet. Retrieved December 1, 2014: <http://www.cdc.gov/hepatitis/Resources/Professionals/PDFs/ABCTable.pdf>.



High-Impact HIV Prevention  
Capacity Building Assistance  
for Healthcare Organizations

17. Work Group of the office of AIDS Research Advisory Council (OARAC) (2014): Guidelines for the Use of Antiretroviral Agents in HIV-1-Infected Adults and Adolescents: Considerations for Antiretroviral Use in Patients with Co-infections. Retrieved December 1, 2014  
<http://aidsinfo.nih.gov/guidelines/html/1/adult-and-adolescent-arv-guidelines/26/hiv-hcv>
18. Sulkowski, M. S. (2008). Viral hepatitis and HIV coinfection. *Journal of Hepatology*, 48(2), 353-367.
19. U.S. Department of Veterans Affairs (2014): Interferon and Ribavirin Treatment Side Effects. Retrieved December 1, 2014: <http://www.hepatitis.va.gov/provider/reviews/treatment-side-effects.asp>
20. Perry, Russel et al. Group Visit Model. New York Hepatitis C Research Consortium. Rockefeller University. September 2014.
21. Linas, B. P., Wong, A. Y., Schackman, B. R., Kim, A. Y., & Freedberg, K. A. (2012). Cost-effective screening for acute hepatitis C virus infection in HIV-infected men who have sex with men. *Clinical infectious diseases*, 55(2), 279-290.
22. Benet, T., D'Oliveira, A., Voirin, N., Livrozet, J. M., Cotte, L., Peyramond, D., ... & Vanhems, P. (2007). Characteristics and survival of HIV-infected patients not screened for hepatitis C vi-rus infection in a hospital-based cohort. *Journal of viral hepatitis*, 14(10), 730-735.
23. European AIDS Clinical Society (EACS) (2013). EACS Guide-lines 7.0. Diagnostic Procedures for HCV in Persons with HCV/HIV Co-infection Part IV, 65-66.
24. National Institute of Health Consensus Development Conference (2002): Management of Hepatitis C. *Hepatology*, 36(5B), s3-s20.
25. Rockstroh, J. K., Mocroft, A., Soriano, V., Tural, C., Losso, M. H., Horban, A., ... & Lundgren, J. (2005). Influence of hepatitis C virus infection on HIV-1 disease progression and response to highly active antiretroviral therapy. *Journal of Infectious Diseases*, 192(6), 992-1002
26. Workowski, K. A., & Berman, S. M. (2011). Centers for disease control and prevention sexually transmitted disease treatment guidelines. *Clinical infectious diseases*, 53(Suppl 3), S59-S63.



High-Impact HIV Prevention  
Capacity Building Assistance  
for Healthcare Organizations