

Hepatitis and HIV in Prisons



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A publication of the National Minority AIDS Council (NMAC), Technical Assistance, Treatment and Training Division, and Steven Jenison, MD.

Case Manager's Checklist

Case managers who work with HIV-positive prisoners and ex-prisoners know that hepatitis C has a major impact on this population. Here is a checklist of hepatitis C questions for HIV case managers in the correctional setting. This booklet will help you answer some of these questions.

Know the basics about hepatitis C:

- What is hepatitis C?
- Can you explain hepatitis C accurately, but in simple terms, to someone who has an elementary school education?

Understand the basics of health maintenance for hepatitis C:

- How can people with hepatitis C protect their health?
- What substance abuse treatment programs are available for your clients who have hepatitis C?
- What counseling or support programs are available for your clients who have hepatitis C?
- Are prisoners with hepatitis C provided a special diet?

Understand the basics of co-infection with hepatitis C and HIV:

- What are the common risk factors for both hepatitis C and HIV?
- Are all HIV-positive prisoners at your facility offered testing for hepatitis C?
- How does HIV/HCV co-infection affect treatment options for HIV and hepatitis C?
- Are co-infected patients seen by physicians with expertise treating co-infection?



Know the basics of how to prevent hepatitis C infection:

- How is hepatitis C transmitted?
- Who is most at risk for hepatitis C?
- How can prisoners and ex-prisoners keep themselves from getting hepatitis C? Can you answer prisoners' questions about the risks of tattoos, drug use, or sex? What about other issues like food service, contact sports, or fights?
- What substance abuse treatment programs are available for your clients who want to stop using drugs and/or alcohol?
- What harm reduction programs are available for your clients who are still using drugs and/or alcohol?

Know how your correctional institution/system deals with hepatitis C testing:

- Will the prison or jail you work with provide hepatitis C testing?
- Are prisoners notified if they test positive for hepatitis C?
- Are test results kept confidential?
- Does a positive hepatitis C test result have unwanted consequences for prisoners (i.e. segregation, reduced access to jobs or programs, loss of confidentiality)?

Know how your correctional institution/system provides medical care to people with hepatitis C:

- What kind of testing and monitoring do prisoners with hepatitis C receive?
 - Genotyping
 - HCV viral load
 - Liver enzymes and other liver function tests
 - Liver biopsy
- Is hepatitis C treatment offered? What are the criteria a prisoner must meet in order to be considered for hepatitis C treatment?
- Are HIV/HCV co-infected prisoners treated for hepatitis C?
- Is there an expert physician who consults or supervises treatment for prisoners with HCV or HIV/HCV?
- At your facility, do you know who you can talk to if there are concerns or questions about a prisoner's medical care?

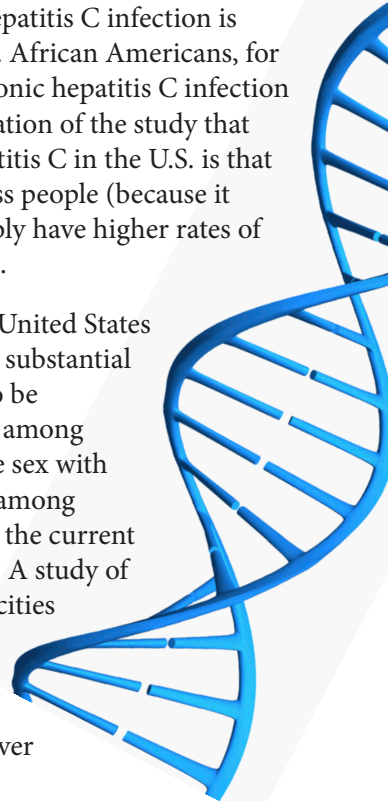
What Is Hepatitis C?

The word hepatitis means inflammation of the liver. Hepatitis can be caused by certain viruses (like hepatitis C) but it can also be caused toxins (like drinking too much alcohol) or as a bad side effect from certain drugs (like acetaminophen overdose). Hepatitis C, discovered in 1989, is an infection of the liver caused by the hepatitis C virus (HCV). A diagnostic blood test developed in 1991 revealed that the virus is widespread throughout the U.S. population.

How Many People Have Hepatitis C?

It is estimated that at least 1.6% of the U.S. population, or about 4.1 million people, has been exposed to the hepatitis C virus.¹ Of that number, 3.2 million are thought to be chronically infected with hepatitis C. That means that in the general U.S. population, about three times as many people have hepatitis C as have HIV, the virus that causes AIDS (At the end of 2006, CDC estimated that there were about 1.1 million people in the U.S. living with HIV/AIDS). The rate of hepatitis C infection is much higher in some specific population groups. African Americans, for example, are known to have twice the rate of chronic hepatitis C infection as compared to non-Hispanic Whites. One limitation of the study that estimated the number of people living with hepatitis C in the U.S. is that it did not include incarcerated people or homeless people (because it relied on a telephone survey), groups that probably have higher rates of hepatitis C infection than the general population.

Most current and past HCV transmission in the United States is associated with injection drug use,² although a substantial proportion of cases of acute hepatitis C appear to be associated with sexual transmission, particularly among people with multiple partners and men who have sex with men.^{2,3,4} Nationwide, the rates of HCV infection among injection drug users appear to be decreasing, but the current prevalence and trends vary by region and by city. A study of over 5,000 injection drug users in four large U.S. cities showed an overall decrease in HCV prevalence from a high of 65% in the period between 1994–1996 to a low of 35% in 2002–2004.⁵ Most people who are infected with hepatitis C have never been tested and do not know they have it.



How Serious Is Hepatitis C?

Hepatitis C can be fatal, causing cirrhosis, liver cancer, liver failure and other serious illnesses. Liver failure due to hepatitis C is the leading cause of liver transplants in the U.S.⁶ Not everyone infected with hepatitis C progresses the same way. Because the disease acts differently in different people, the natural history of hepatitis C can sometimes seem confusing. It is worth learning about the ways the disease progresses in order to make informed choices about prevention, testing, treatment and health.

Of people exposed to the hepatitis C virus, about 15–25% spontaneously clear the infection without treatment. The remaining 75–85% become chronically infected, which means they have hepatitis C virus in their blood and in their liver.

Among adults infected with hepatitis C:

- 75–85% may develop chronic, long-term infection.
- About 5 to 20% may develop cirrhosis, a serious liver disease that causes scar tissue in the liver, over a period of 20 to 30 years.
- Liver cancer (hepatocellular carcinoma) develops in people with cirrhosis at a rate of around 1 to 2% per year.

What Are the Symptoms of Hepatitis C?

Often people with HCV do not exhibit any symptoms associated with the virus, and may be infected a long time without knowing it. When infected people do exhibit symptoms, they are usually mild, nonspecific and come and go over time.

Symptoms may include:

- Fatigue
- Mild discomfort or tenderness in the area of the liver (right upper side of the abdomen)
- Nausea
- Poor appetite
- Muscle and joint pains

What Is Acute Hepatitis C Infection?

The first six months after exposure to the hepatitis C virus (HCV) is called an acute hepatitis C infection. About two-thirds of people infected with HCV experience no symptoms of acute infection. The remaining third exhibit symptoms which are generally mild an average of 6 to 7 weeks after exposure.

Symptoms of acute infection can include:

- Jaundice (yellowing of the skin and eyes)
- Loss of appetite
- Abdominal pain
- Malaise (a vague feeling of discomfort or uneasiness)

One of the main features of acute hepatitis C is a fluctuation (rise and fall) in the ALT levels. ALT is a liver enzyme that can be measured by a blood test. (See section on ALT on page 16).

Diagnosing Acute Hepatitis C Infection

The most common test for hepatitis C infection is an HCV antibody test, a blood test that looks for antibodies produced by the body's immune system in response to an infection. But sometimes, the symptoms of acute hepatitis C occur before the body has had time to produce antibodies that could be detected by the antibody test (See section on testing on page 14).

For this reason, a doctor testing someone for acute hepatitis C infection might use an HCV RNA test (also known as an HCV viral load test) instead of an antibody test. Because of the immune deficiency related to HIV infection, some HIV-positive people with chronic HCV infection have a false negative HCV antibody test (i.e., the HCV antibody test is negative even though the person actually has HCV infection). Any HIV-positive person with unexplained liver abnormalities (i.e., abnormal ALT test) and a negative HCV antibody test should receive an HCV RNA test if no other explanation for their liver disease is apparent.

An HCV RNA test looks for the virus itself, rather than antibodies. Such tests can detect HCV infection as soon as 1–2 weeks after exposure, whereas HCV antibody tests are considered accurate about 2 months after exposure (except in some people with HIV infection).

It is important to recognize and diagnose acute hepatitis C infection whenever possible because hepatitis C treatment is much more successful when it is started soon after a person first gets infected. This is also true for people with HIV who get acute HCV infection.⁷ That having been said, it is recommended that the person with acute hepatitis C infection be followed for 2 to 4 months after onset of symptoms to see if they resolve their hepatitis C infection spontaneously without treatment.

How Is Hepatitis C Spread?

HCV is transmitted by contact with the blood of a person infected by HCV. The most common method of transmission is injecting drugs using needles or injection works that have been used by someone infected with HCV. HCV can also be transmitted by sharing needles used for other purposes (such as tattooing, piercing, acupuncture, or injecting steroids), by sharing razors or toothbrushes, by accidentally being stuck with a needle, by fights that involve blood, or by any other activity that results in contact with another person's blood. In fact, tattoos received while incarcerated appear to be a particular risk for acquiring hepatitis C.⁸ People who received blood transfusions or transfusions of plasma-derived products prior to 1992 are also at risk for HCV. Although not the most common (or effective) means of transmission, HCV can also be transmitted via unprotected sex with an infected person and from mother-to-child during the birth process.

Can a Person Get Hepatitis C Again if He or She has Already Had It?

Yes. If a person was infected with hepatitis C and then cleared the virus from his or her body (either on his/her own or through treatment), that person could get infected with it again.

Can People Who Are HIV-Positive Also Have Hepatitis C?

Yes. A person can be infected with both hepatitis C and HIV, the virus that causes AIDS: this is called HIV/HCV co-infection.

Hepatitis C infection is much more common among people living with HIV/AIDS than in people who are HIV-uninfected. Overall, it is estimated that 25 to 30% of HIV-positive people are HCV co-infected, and this prevalence varies by HIV risk category (72–95% for IDUs; 1–12% for men who have sex with men; 9–27% for heterosexuals).⁹ Conversely, about 8% of people with chronic hepatitis C infection are HIV co-infected.

Is HIV/HCV Co-Infection a Problem in Prisons and Jails?

Depending upon the prison system, it is estimated that between 16 to 41% of inmates have been exposed to HCV, and between 12 and 31% have chronic HCV infection.¹⁰ The rate of hepatitis C infection in jails is estimated to be about 13%.¹¹ Among HIV-positive prison inmates, the rate of hepatitis C co-infection is about 38%.¹¹ HCV and HIV/HCV co-infection result in a significant number of deaths among prison inmates.

End-stage liver disease is three times higher in prisons. A study in the Texas prison system from 1994 to 2004 indicated increasing HCV-related death rates over those years, with the largest increase among Hispanic inmates. In that study, 7% of all HIV deaths were related to HCV co-infection.¹² The rate of liver cancer in the Texas prison system are seven times greater, and death rates from liver cancer are four times greater, as compared to the U.S. male population.¹³

For an excellent discussion of management of hepatitis C in prisons, consider the paper “A Framework for Management of Hepatitis C in Prisons,” by Anne Spaulding and colleagues (see Reference 14).

How Can Prisoners and Prison Staff Avoid Getting Hepatitis C?

To avoid becoming infected with hepatitis C, prisoners and prison staff should take care to avoid contact with other people’s blood.

For prisoners, this means:

- Do not shoot drugs.
- Do not share needles, syringes, water, cotton, or works used for drug injection.
- Do not share personal care items like razors, clippers, toothbrushes or other items that might have blood on them.
- Avoid tattooing or body piercing until you get out of jail or prison and can go to a shop that has access to adequate sanitation and hygiene equipment.
- Avoid touching anyone else’s blood, including menstrual blood, bites, sores, or wounds.
- Avoid unsafe sex (sex without condoms).

All the same hepatitis C prevention precautions apply to prison staff. In addition, prison staff should receive training in universal precautions for avoiding infectious diseases on the job. The main principle of universal precautions is to use barriers, such as latex gloves, to reduce exposure to blood or other body fluids containing visible blood, semen, or vaginal secretions.

Is It Important for a Person to Know if He or She Has Hepatitis C or HIV/HCV Co-Infection?

Yes. It is important for a person to know if he or she has hepatitis C or HIV/HCV co-infection so he or she can make informed decisions about treatment, health maintenance and how to prevent transmission of the virus to others. Here are some concrete examples of why it is helpful for a person to know if he or she has hepatitis C:

- People with hepatitis C should receive vaccinations against hepatitis A and B.
- Alcohol use can significantly affect the progression of liver disease in people with hepatitis C.
- Prescription and over-the-counter medicines, and herbal remedies can all affect the liver, and should be discussed with a physician if a person has hepatitis C.
- People with hepatitis C can transmit it to others (through needles or any other contact with blood) unless they take steps to protect themselves and others.
- Having hepatitis C can influence treatment decisions, including the choice of appropriate medications for HIV/AIDS.



People with hepatitis C should not donate blood or organs. Conversely, there are reasons why a person might not want to be tested for hepatitis C. In some correctional settings, for example, prisoners with hepatitis C might fear the stigma sometimes associated with the virus that can lead to discrimination where the prison treats them differently than other prisoners. From a public health perspective, discrimination on the basis of hepatitis C infection (or HIV infection) is not necessary or appropriate, and it may discourage at-risk patients from getting tested.

Peer-led discussion and support groups can be an important resource for prisoners and prison staff for learning about hepatitis C and making informed decisions about testing and treatment. Case managers who know that a prisoner or ex-prisoner client has a history of injection drug use should know that injection drug use is a major risk factor for hepatitis C, and should also know what hepatitis C testing and treatment options are available for that client.

Hepatitis C Testing Recommendations

Federal health authorities recommend routine hepatitis C testing for the following persons:

- Persons who are HIV-positive.
- Persons who have chronic hepatitis B infection (hepatitis B surface antigen positive carriers).
- Persons who have ever injected illegal drugs.
- Persons who received clotting factor concentrate produced before 1987.
- Persons who were ever on long-term hemodialysis.
- Persons who have evidence of chronic liver disease, including persistently abnormal ALT levels.
- Persons who received a transfusion of blood or blood components or an organ transplant before July 1992.
- Health-care, emergency medical, public safety and correctional workers after needle sticks, sharps, or mucosal exposure to HCV-positive blood.
- Children born to HCV-positive women.

What Is the Test to Determine if a Person Has Hepatitis C?

The most common test for hepatitis C is called the HCV EIA (enzyme immunoassay), which tests for hepatitis C antibodies. Hepatitis C antibodies are produced by the body's immune system as a reaction to the hepatitis C virus. Ninety percent of people exposed to hepatitis C will produce antibodies to the virus within 2 months of being exposed. However, people with immune system disorders (like HIV/AIDS) may not always have well-functioning immune systems, and they may not always produce antibodies. For this reason, the HCV EIA test may give false negative results for people who are immune-suppressed. A false negative result means that the test result says a person has not been exposed to hepatitis C, when in reality they have been.

It should also be noted that a positive HCV antibody test does not indicate whether an infection is new (acute), chronic, or if a person was previously infected but has now cleared the virus from his or her body. After a positive HCV EIA test result, a confirmatory HCV RNA test should be performed to double-check the positive result. An HCV RNA test looks for the actual virus in the blood, not antibodies. If the HCV RNA test is positive, it confirms that the person has active HCV infection. However, sometimes people with active HCV infection can have a negative HCV RNA test because levels of the virus in the blood can wax and wane (sometimes all the way down to zero) over time. There is another confirmatory HCV blood test called the RIBA (Recombinant ImmunoBlot Assay). The HCV RIBA is similar in how it works to the HIV Western blot assay, which is used to confirm positive HIV EIA results. Under most circumstances, the HCV RNA test is used as the confirmatory test rather than the HCV RIBA.

If a Hepatitis C Antibody Test Is Positive and Confirmed, What Other Tests Are Needed to Determine the Status of the Disease?

Many tests and procedures can provide important information for monitoring and treating hepatitis C infection. We discuss four here:

- Genotyping
- HCV Viral Load
- ALT
- Liver Biopsy

Genotyping

The genotype is the genetic make-up of an organism or a virus. Different genotypes of viruses are a little like different breeds of dogs. Just as a retriever and a terrier are types of dogs possessing unique qualities, genotypes of the hepatitis C virus have different important characteristics. The most important difference between the different genotypes of HCV is that they respond more or less well to treatment. Most people infected with hepatitis C in the United States have genotype 1, but a significant number of people have genotype 2 or 3.

- People infected with genotypes 2 and 3 are about twice as likely to achieve a sustained, positive response to HCV treatment as people infected with genotype 1 (78 to 84% for genotypes 2 and 3; 42 to 52% for genotype 1).
- It is recommended that people infected with genotype 1 who are on combination therapy of interferon and ribavirin, both anti-HCV medications, take treatment for 48 weeks, as compared with 24 weeks for people infected with genotypes 2 or 3 (although the current recommendation in people with HIV/HCV co-infection is for at least 48 weeks of treatment regardless of HCV genotype).
- The genotype test only has to be given once since genotype information does not change over time.

HCV Viral Load

An HCV viral load test (HCV RNA quantitative assay) measures the amount of virus in the blood. A person's HCV viral load does not provide information about the severity or duration of the disease or how far it has progressed, but it can help predict and monitor the effectiveness of treatment. A low HCV viral load is associated with a better response to treatment, and measuring the HCV viral load regularly over time (always using the same type of viral load test) can help monitor whether treatment is working. For people taking HCV treatment, viral load tests should be administered at baseline (before treatment starts), at 4 weeks (Rapid Virologic Response, or "RVR")¹⁵, 12 weeks (Early Virologic Response, or "EVR"), 24 weeks or 48 weeks (End-of-Treatment Response, or "ETR") and, for those who respond to treatment, 6 months after stopping treatment (Sustained Virologic Response, or "SVR").

ALT

ALT stands for alanine aminotransferase, which is an enzyme in the liver. ALT levels are checked using a blood test. Elevated ALT levels indicate inflammation of the liver. Though ALT levels often rise and fall over time, persistently elevated ALT levels are an indication of chronic liver disease. However, it is also possible to have very active HCV infection and advanced HCV liver disease and have a completely normal ALT level. It is possible to have HCV and high ALT levels and have little or no liver disease. So the ALT level is useful in some, but not all, situations.

Liver Biopsy

A liver biopsy is a test done by putting a needle into the liver through the abdomen or threaded through a catheter in the jugular vein (a large vein in the neck), and then taking out a small sample of the liver in the needle. The sample is tested and graded on a zero-to-four scale:

- 0: No damage
- 1: Mild scarring (called fibrosis)
- 2: Medium fibrosis
- 3: Bridging fibrosis
- 4: Cirrhosis

The biopsy is one of the most reliable tools doctors have to determine the extent of damage that has been caused to the liver. Information about damage to the liver can help guide decisions about treatment. For example, some people decide to delay starting HCV treatment if a biopsy shows there has been little or no damage to the liver. Liver biopsy is used most often to help to make a decision about whether or not to treat someone with HCV genotype 1 infection, where the response to treatment is much poorer than with genotypes 2 or 3. Although a liver biopsy may be helpful in making an individual decision about HCV treatment, especially in people with HCV genotype 1, it is not considered a necessary part of the evaluation. It is important that a person who is getting a liver biopsy not take aspirin or any other drug that might thin the blood for a week before and a week after the procedure. Recently, some new radiology tests (magnetic resonance elastography & ultrasound elastography) have been developed that may offer an alternative to liver biopsy for assessing HCV liver damage, but these tests have not yet been approved by the Food & Drug Administration for this purpose.¹⁶

Tips to Help People with Hepatitis C Protect Their Liver and Stay Healthy

- Do not drink alcohol or take drugs.
- Drink lots of water and eat high fiber, low fat foods. One exception: patients with ascites, fluid in the abdomen, should talk to their doctor about appropriate food and water intake.
- Develop an exercise plan that balances the health benefits of exercise and stress reduction.
- Talk with your doctor about the risks and benefits of over-the-counter pain-killers. Acetaminophen (Tylenol) is generally the over-the-counter drug of choice for mild pain in patients with chronic liver disease. Ibuprofen (Advil, Motrin, etc.) may not be appropriate for people with hepatitis or liver disease. Consult your doctor before using products that contain ibuprofen.
- Choose low-fat food options whenever you can, and, ideally, reduce intake levels of saturated fats, animal fats and simple carbohydrates, like sugar and white flour.
- Do not consume excessive amounts of protein or iron, and do not take vitamins that contain iron supplements.
- Talk with your doctor about other steps you can take to maintain your health.



How Do You Treat Hepatitis C?

In 2002, the National Institutes of Health published a national consensus statement on the treatment of hepatitis C. The most recently available treatment guidelines are the American Association for the Study of Liver Diseases (AASLD) Practice Guidelines titled “Diagnosis, Management, and Treatment of Hepatitis C: An Update” (see Reference 17). In addition, the Centers for Disease Control and Prevention (CDC) has published recommendations for the control and prevention of hepatitis in correctional settings. Information about how to obtain free copies of these documents is located in the resources section at the end of this booklet. Treatment options for hepatitis C are evolving constantly. At the time of publication, the standard of care for hepatitis C treatment is combination therapy with pegylated interferon and ribavirin. Interferon is taken as an injection and ribavirin is taken in pills. The word “pegylated” (PEG-uh-lay-tid) refers to interferon manufactured in a special way to ensure that it is released into the body at higher levels over a longer period of time. It has replaced non-pegylated interferon as the standard of care both for combination therapy and when used alone. Pegylated interferon (peginterferon alfa-2a, or “Pegasys[®]”; peginterferon alfa-2b, or “Peg-Intron[®]”) is only taken once a week. Ribavirin pills are taken twice a day.

Telaprevir, a hepatitis C protease inhibitor, is a new HCV drug on the horizon. It is not yet licensed for use, but it is making progress in that direction. When used in combination with pegylated interferon and ribavirin, it results in higher response rates than standard treatment with interferon and ribavirin alone.¹⁸

Federal Recommendations for the Treatment of Prisoners with Hepatitis C

All anti-HCV-positive inmates should be evaluated for evidence of chronic HCV infection, including the presence and extent of chronic liver disease and candidacy for antiviral therapy. Treatment of patients with chronic hepatitis C should be conducted in consultation with a specialist familiar with these treatment regimens.

Correctional facilities or systems should establish criteria based on the latest treatment guidelines for the identification of prisoners who might benefit from antiviral treatment. Reference to the most recent Federal

Bureau of Prisons guidelines for HCV and HIV treatment are provided in the Resources section of this booklet. All prisoners with chronic HCV should be vaccinated for HAV and HBV. Prisoners with hepatitis C who are actively abusing drugs and/or alcohol should receive appropriate substance abuse treatment.

Most correctional systems that provide HCV treatment require a pre-treatment evaluation that may include any or all of the following elements:

- An evaluation of the extent or stage of HCV-related liver disease
- An evaluation of co-morbid medical conditions that may affect HCV treatment including HIV infection, HBV infection, autoimmune diseases (especially autoimmune hepatitis), untreated thyroid disease, anemia, low platelet count, low white blood cell (neutrophil) count, diabetes, hypertension, heart disease, lung disease and kidney disease.
- An evaluation for psychiatric conditions that might be made worse by the side effects of ribavirin, especially depression.
- An evaluation for ongoing substance use issues, especially related to injection drug use.



How Effective Is HCV Treatment?

Response to HCV treatment is affected by a number of factors, including the genotype of the HCV virus, the extent of liver damage, co-infection with HIV or other chronic infections, HCV viral load, drug and alcohol use, obesity, age, race and sex. In a best-case scenario, nearly half of genotype 1 patients and 80 percent of genotype 2 and 3 patients may be expected to achieve a Sustained Virologic Response. In people with HCV genotype 1 infection who are not HIV-positive, the sustained response rate among African-Americans is about 30% and among Hispanics is 34% compared to 50% among non-Hispanic Whites.^{19–20}

Sustained Virologic Response (SVR) means having undetectable levels of HCV viral load six months after stopping treatment, and probably represents a cure of the HCV infection. Combination therapy (pegylated interferon and ribavirin) is more likely to produce an SVR than interferon only. High doses of ribavirin taken consistently, especially early in the course of treatment, are important for achieving a good response in the treatment of HCV genotype 1. For people with HCV genotype 1, the dose of ribavirin should be adjusted according to the patient's weight (1,000 mg daily for people less than 75 kg; 1,200 mg daily for people greater than 75 kg). For people with genotypes 2 and 3, a lower dose of ribavirin (800 mg daily) is recommended. However, in people with HIV/HCV co-infection, weight-based ribavirin dosing is generally recommended regardless of HCV genotype. Whenever possible, high doses of ribavirin should be maintained. Often this requires treating the anemia caused by ribavirin with a red blood cell stimulating drug (i.e., epoietin, or "Epogen®"). Like the negative effect that ribavirin can have on red blood cells producing anemia, pegylated interferon can have a negative effect on white blood cells, or neutrophils, causing "neutropenia". If the neutrophil count gets too low, it can require treatment with a white blood cell stimulating drug (G-CSF, or "Neupogen®").

An HCV viral load measured at 12 weeks into treatment (Early Virologic Response, or EVR) is highly predictive of whether or not a person is likely to be cured (Sustained Virologic Response). At 12 weeks, the HCV viral load should be undetectable or should have decreased at least 100-fold from what it was before treatment was started. If this does not occur, then treatment can be stopped because the chances of a cure are so small.¹⁷

What About Side Effects?

Side effects of both interferon and ribavirin can be considerable, and must be taken into account when considering HCV treatment.

Interferon

The most common side effect associated with interferon is a flu-like illness that occurs in the first 4 weeks of taking the drug. After the first 4 weeks, the flu-like symptoms often go away, but other side effects start. Common later side effects can include fatigue, headache, hair loss, low blood count, moodiness, difficulty concentrating and depression. Because of the possibility that interferon will induce depression, people with a history of depression or other mental illness should be carefully monitored while undergoing interferon treatment. People with certain autoimmune diseases (immune thyroid disease, rheumatoid arthritis, lupus and psoriasis) should discuss these conditions with the doctor before starting interferon. Interferon dosage must be reduced in up to 40 out of 100 people taking the drug because of the severity of side effects. Side effects cause about 15 in every 100 patients to stop taking interferon. Giving interferon doses at night and taking acetaminophen (Tylenol®) before doses can sometimes help reduce the severity of some side effects.

Ribavirin

Ribavirin can cause severe anemia (low red blood cell count), fatigue, itching, rash, sinusitis and gout. Because of the risk of anemia, caution should be exercised with people who already have anemia, or other conditions (such as kidney failure, chronic lung disease or heart disease) that might be made worse by anemia.

What About Pregnancy and HCV Treatment?

Ribavirin should not be used in pregnancy because it may cause birth defects. Pegylated interferon is not recommended in pregnancy because it may cause spontaneous abortion. Pregnant women should not take interferon and ribavirin, and women should not become pregnant for at least six months after treatment. While there is no treatment that a pregnant woman with hepatitis C can take to guarantee that she will not infect her child, it is important to note that about 94–96% of babies born to women with hepatitis C will not be infected (although the risk of HCV transmission from mother-to-baby is about 2 to 3 times higher if the mother is also HIV-infected).

Babies should not be tested for HCV antibodies until they are at least 12 to 18 months old; before that time the test may actually be detecting the mother's antibodies, not the child's. Also, there is a high rate of spontaneous clearance of HCV infection within the first year of life. Rather than an antibody test, a qualitative HCV RNA test may be administered to the child at one or two months of age if an earlier diagnosis is desired. Breastfeeding has not been linked to the transmission of hepatitis C, though women with cracked or bleeding nipples may choose to avoid breastfeeding.

What About Treatment for Hepatitis C if You Are Also Co-Infected with HIV?

Patients with HIV should not be excluded from consideration for hepatitis C treatment. Being HIV-positive speeds up the progression of hepatitis C, so many clinicians recommend taking a more urgent approach to hepatitis C treatment among patients who are HIV-positive. In particular, people with HIV/HCV co-infection are about twice as likely to develop cirrhosis as people who are only infected with HCV. HCV treatment in HIV/HCV co-infected individuals results in significantly better outcomes in terms of decreasing the progression of liver disease and decreasing deaths as compared to people who do not receive HCV treatment.²¹ Three large studies of HCV treatment in HIV co-infected people have been published. These studies are generally referred to by their acronyms: APRICOT,²² ACTG 5071²³ and RIBAVIC²⁴. In these studies, people with both HIV and HCV responded less well to HCV treatment than people with HCV alone by about half. People with HIV/HCV and genotype 1 got a sustained response about 26% (14–29%) of the time, compared to a sustained response rate of 42–52% for people with HCV alone. People with HIV/HCV and genotypes 2 or 3 got a sustained response about 57% (44 to 73%) of the time, compared to a sustained response rate of 78 to 84% in people with HCV alone. A more recent study, the PRESCO trial,²⁵ improved the response rates some in HIV/HCV co-infected people (35% for genotype 1; 72.4% for genotypes 2 and 3) by carefully adjusting the ribavirin doses for the patient's weight and by keeping the ribavirin doses as high as possible. To keep the ribavirin doses high, it was often necessary to use epoietin (Epoegen®) to treat the anemia caused by ribavirin.

Several factors predict whether a person with HIV/HCV co-infection is going to respond to HCV treatment with pegylated interferon and ribavirin:

- Genotypes 2 and 3 respond better than genotype 1
- People with an HCV viral load of less than 800,000 before treatment generally do better than people with higher HCV viral loads
- People who are less than 40 years old do better than older people
- Non-Hispanic White patients do better than African American and Hispanic patients

The side effects of HCV treatment can be worse in people with HIV co-infection as well, including the anemia from ribavirin and the neutropenia from pegylated interferon. Severe decompensated liver disease has developed in some HIV/HCV co-infected people who are receiving HCV treatment. Severe weight loss is a particular problem with HIV/HCV co-infected people on HCV treatment and can require stopping treatment.²⁶ Generally, CD4 counts go down some during HCV treatment, but they go back up once treatment is completed, and this doesn't seem to result in problems related to increased immunodeficiency.

Although recommendations for HCV treatment in HIV/HCV co-infected individuals is in a state of flux, the following issues regarding HIV/HCV co-infection should be considered:

- All people with HCV infection should be tested for HIV infection because HIV co-infection may alter the course of HCV disease and may affect treatment decisions.



- All people with HIV infection should be tested for HCV infection. People with HIV who have unexplained liver abnormalities and a negative HCV antibody test should receive an HCV RNA test to look for the possibility of HCV infection.
- All people with HIV/HCV co-infection should be considered for HCV treatment, weighing the benefits and risks for that patient.
- HCV treatment should consist of pegylated interferon plus ribavirin for at least 48 weeks regardless of HCV genotype (although recommendations on the length of treatment are in a state of flux). Ribavirin doses should be adjusted for the patient's weight.
- Decompensated cirrhosis is a contraindication to HCV treatment.

A summary of the available HCV treatment trials in HIV/HCV co-infected individuals is available at Gluud LL et al., "Peginterferon plus ribavirin for chronic hepatitis C in patients with human immunodeficiency virus: (see Reference 27).

If a person has HIV/HCV co-infection, HIV treatment by itself may also help decrease the progression of HCV liver disease and improve overall survival.²⁸⁻³⁰ Certain HIV medications should probably be avoided including didanosine (ddI; Videx®) and stavudine (d4T; Zerit®) because of their association with lactic acidosis; and nevirapine (NVP; Viramune®) because it has sometimes caused liver failure. The HIV medication efavirenz (EFZ; Sustiva®, also a component of Atripla®) should be used with caution in people with advanced liver disease because blood levels can rise unpredictably. Other HIV medicines should be avoided in people who are currently receiving HCV treatment, including: zidovudine (ZDV; "AZT"; Retrovir®, also a component of Combivir® and Trizivir®) because it can make ribavirin anemia worse; didanosine (ddI; Videx®) because it can interact with ribavirin to cause acute pancreatitis; and, abacavir (ABC; Ziagen®, also a component of Epzicom® and Trizivir®) because it can decrease ribavirin levels in the blood.²⁶

Because of these complications, and because the treatment of HIV/HCV co-infection is a fast-evolving field of medicine, it is recommended by federal health authorities that people co-infected with HIV and hepatitis C should see an expert physician with experience treating HIV/HCV co-infection.

What Is Hepatitis A?

Hepatitis A is a liver disease caused by the hepatitis A virus. Hepatitis A is transmitted by putting something in the mouth (food, water, hands) that has been in contact with the feces of an infected person.

Not everyone who is infected with hepatitis A has symptoms, but those who do experience fever, tiredness, loss of appetite, nausea, stomach ache, dark-colored urine and jaundice (yellowing of the skin and eyes). Symptoms appear an average of 28 days after exposure to the hepatitis A virus. Unlike hepatitis C, hepatitis A infection is a short-term, non-chronic infection: symptoms usually last less than two months.

For people already infected with hepatitis C, super-infection with hepatitis A can be deadly. Once a person has been infected with hepatitis A, he or she cannot become infected with it again.

Hepatitis A can be avoided by hand washing (especially after using the bathroom or changing diapers) and by wearing disposable gloves when handling soiled clothing or bedclothes, or any other potentially infectious material. You should also always wash your hands before eating or preparing food.

Hepatitis A Vaccine

There is a hepatitis A vaccine, which is administered via two shots over a 6 to 12 month time period, that provides lifelong protection from hepatitis A infection. The vaccine should generally be given only to people who have not already been exposed to hepatitis A, but it doesn't hurt to get the hepatitis A vaccine if you already had hepatitis A.

Federal health authorities recommend that hepatitis A vaccine be administered to men who have sex with men, drug users, persons with chronic liver disease and some other groups, especially people who live in parts of the U.S. and parts of the world that have a lot of hepatitis A. It is not currently recommended for routine immunization in prisons because hepatitis A outbreaks in prison settings are uncommon.

The hepatitis A vaccine is safe for people who are HIV-positive.

For more information, please refer to the Resources section at the end of this booklet, which provides detailed information concerning how to obtain copies of the CDC recommendations on hepatitis in corrections.

For people who have been exposed to hepatitis A, a drug called immune globulin taken within two weeks of exposure can help prevent infection.

What Is Hepatitis B?

Hepatitis B is a liver disease caused by the hepatitis B virus. Unlike hepatitis A, hepatitis B is not spread by food or water. Like HIV, hepatitis B is most often spread by sexual contact and by sharing contaminated needles. It is not spread through tears, sweat or casual contact, like touching or hugging. Contracted via contact with the blood or body fluids, including semen and vaginal secretions of a person infected with the virus, unprotected sex spreads hepatitis B more easily than hepatitis C or even HIV.

The National Commission on Correctional Health Care recommends that all correctional inmates be screened for hepatitis B.

The most common ways to become infected with hepatitis B are having unprotected sex or sharing needles or injection works with someone who is infected. Hepatitis B can also be spread by using a toothbrush or razor that has been used by someone infected with hepatitis B, by being stuck with a needle or sharp object contaminated with blood, or through any other way a person might come in contact with someone else's blood.

Exposure to hepatitis B can be avoided by not sharing needles or having unprotected sex, and by using universal precautions to avoid contact with other people's blood (and other body fluids that may contain blood).

Hepatitis B vaccine and/or the drug HBIG can be administered soon after exposure to HBV to help reduce the chance of infection. Infection can be avoided by taking the hepatitis B vaccine.

Pregnant women can pass hepatitis B to their infants during childbirth. This can be prevented through hepatitis B vaccination and a drug called HBIG (Hepatitis B Immune Globulin).

Symptoms of hepatitis B infection include fever, loss of appetite, nausea, stomach ache, joint pain, jaundice (yellowing of the skin and eyes) and extreme fatigue lasting weeks or months.

Symptoms appear an average of 4 months after exposure to the hepatitis B virus. Most people who have been exposed to hepatitis B recover from the infection and clear the virus from their bodies. Among people over the age of 5 years, about 3 to 6% of those infected with the hepatitis B virus become chronically infected, which means they continue to keep the virus in their blood and can infect others. People infected at a very young

age or at birth, and people who already have HIV when they become infected with hepatitis B, are more likely to become chronically infected.

People who are chronically infected with hepatitis B are at high risk for cirrhosis and liver cancer: 15–25% of people chronically infected with hepatitis B die from chronic liver disease.

However, there are now several drugs that can be used to treat chronic hepatitis B infection.^{31–32} Some of these drugs are HIV medications that were found to work against hepatitis B as well. The HIV medicines tenofovir (TDF; Viread[®]; also a component of Truvada[®] and Atripla[®]), emtricitabine (FTC; Emtriva[®]; also a component of Truvada[®] and Atripla[®]) and lamivudine (3TC; Epivir[®]; also a component of Combivir[®], Epzicom[®] and Trizivir[®]) all are highly effective in treating hepatitis B. Other hepatitis B medications that are licensed include entecavir (Baraclude[®]), adefovir (Hepsera[®]) and telbivudine (Tyzeka[®]). It is very important to know whether someone with HIV infection is co-infected with hepatitis B. If that person is taking HIV medications that are also active against hepatitis B, and if those medications are stopped suddenly, the person can have a severe flare of their liver disease that is sometimes fatal.

Hepatitis B Vaccine

There is a hepatitis B vaccine that provides protection against hepatitis B infection. It consists of three or four shots given over a period of six months, though the vaccination schedule is not rigid. If it is not possible to complete the vaccination series, a single dose offers some protection and should be administered (but two shots are better than one)

The Occupational Safety and Health Administration requires that correctional staff who have direct contact with prisoners receive hepatitis B vaccinations, or that such vaccinations be available at no cost to the employee. People who are at high risk of exposure to hepatitis B should have a blood test done after they have completed the three-shot course of vaccine to make sure that they have developed immunity. The Centers for Disease Control and Prevention and the National Commission on Correctional Health Care advise that prisoners also be vaccinated for hepatitis B.

Hepatitis B vaccination is safe for people who are HIV-positive.

Correctional facilities may, through a federal program, be able to receive free hepatitis B vaccinations for prisoners up to age 19. State departments of health may also be able to assist correctional facilities in providing hepatitis B vaccinations.

Resources

American Association for the Study of Liver Diseases

Updated comprehensive hepatitis C treatment guidelines:

<http://www.aasld.org/practiceguidelines/Pages/default.aspx>

Federal Bureau of Prisons HCV and HIV Treatment Guidelines

HCV: <http://www.nicic.org/Library/023826> (updated 07/02/2009)

HIV: <http://www.nicic.org/Library/021582> (updated 12/04/2006)

Treatment Action Group

“Guide to Hepatitis C for People Living with HIV”—excellent patient-oriented HIV/HCV co-infection resource

<http://www.treatmentactiongroup.org/base.aspx?id=414>

Centers for Disease Control and Prevention (CDC)

Recommendations on Hepatitis in Correctional Settings

The article “Prevention and control of infections with hepatitis viruses in correctional settings”, is available in the publication, *Morbidity and Mortality Weekly Report*, Vol. 52, No. RR-1. Request print copies of the report by postal mail:

Superintendent of Documents, U.S. Government Printing Office (GPO), Washington, DC 20402-9371 or telephone: (202) 512-1800. The report also is available online:

<http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5201a1.htm>

For information on all forms of viral hepatitis, contact the CDC via telephone (800) 232-4636 or online: <http://www.cdc.gov/hepatitis>

CDC maintains a specific webpage on hepatitis in corrections at:

<http://www.cdc.gov/hepatitis/Populations/corrections.htm>

Infectious Diseases in Corrections Report (Formerly “HEPP Report”)

The IDCR was a monthly publication of the HIV and Hepatitis Education Prison Project, based at Brown University, geared toward correctional health care providers. The IDCR is no longer publishing the monograph, but archives of previously published monographs are available online at:

<http://www.idcronline.org/archives.html>

National AIDS Treatment Advocacy Project (NATAP)

NATAP maintains an on-line library of HIV/HCV co-infection articles
Website: <http://www.natap.org/>

National Association of State and Territorial AIDS Directors (NASTAD) HIV/HCV Materials

NASTAD publishes a resource guide for integrating hepatitis issues into HIV/AIDS programs. For additional information, contact the organization via postal mail: NASTAD, 444 North Capitol Street, NW, Suite 339, Washington D.C. 20001; telephone: 202-434-8090 or fax: 202-434-8092, or visit its website:

[http://www.nastad.org/Programs/viral hepatitis](http://www.nastad.org/Programs/viral_hepatitis)

National Commission on Correctional Health Care *Training Curricula*

The National Commission on Correctional Health Care publishes hepatitis A, B and C training curricula for prisoners and correctional officers, as well as standards and position statements on a number of correctional health topics. .or more information, contact the organization via postal mail: NCCHC, 1145 W. Diversey Pkwy., Chicago IL 60614; telephone: (773) 880-1460; or fax: (773) 880-2424.

E-mail: info@ncchc.org

At the time of this writing, the NCCHC clinical guidelines were under revision and are expected to be released in the Fall of 2009. The clinical guidelines will be available at:

<http://www.ncchc.org/resources/clinicalguides.html>

National Digestive Diseases Information Clearinghouse (NDDIC) *Patient Education Materials*

NDDIC publishes and distributes patient education materials on hepatitis C. Request free copies of these materials via postal mail: NDDIC, 2 Information Way, Bethesda, MD 20892-3570. Some of these materials are available online: http://digestive.niddk.nih.gov/ddiseases/pubs/hepc_ez/

AIDS InfoNet

HIV and HIV/HCV treatment information in non-technical language in English and Spanish:

<http://www.aidsinfonet.org/>

National HCV Prison Coalition

For more information, contact the coalition via postal mail: National HCV Prison Coalition, P.O. Box 41803, Eugene, OR 97404, or visit it online: <http://www.hcvinprison.org>

National Institutes of Health (NIH) Consensus Statement on Hepatitis C Management

Requests for free, printed single copies of the 2002 National Institutes of Health (NIH) Consensus Statement on Management of Hepatitis C may be submitted via postal mail: NIH Consensus Program Information Center, P.O. Box 2577, Kensington, MD 20891; telephone: (888) 644-2667 or NIH-CONSENSUS (toll-free); or e-mail: consensus_statements@mail.nih.gov. The report also is available online:

<http://consensus.nih.gov/2002/2002HepatitisC2002116main.htm>

United States Federal Government HIV/AIDS Guidelines

To obtain a free copy of any of the federal guidelines for HIV/AIDS, including treatment guidelines and guidelines for preventing opportunistic infections, contact the Department of Health and Human Services via postal mail: AIDSinfo, P.O. Box 6303, Rockville, MD 20849-6303; telephone: (800) 448-0440; (301) 519-0459; fax: (301) 519-6616; or e-mail: ContactUs@AIDSinfo.nih.gov.

Website: <http://www.aidsinfo.nih.gov/Guidelines/>

Vaccines for Children Program

The Vaccines for Children program assists with hepatitis B vaccinations for prisoners ages 18 or younger. For additional information, contact the National Immunization Hotline via telephone: 1-800-232-4636 (1-800-CDC-INFO), or visit the program online:

<http://www.cdc.gov/vaccines/programs/vfc/default.htm>

Glossary

- **Acute Hepatitis C Infection:** The first 6 months after exposure to the hepatitis C virus. About a third of people with acute hepatitis C infection experience jaundice, loss of appetite, abdominal pain and/or malaise an average of about 6 to 7 weeks after being exposed to HCV.
- **AIDS:** Acquired Immune Deficiency Syndrome.
- **Anemia:** low red blood cell count.
- **Antibodies:** produced by the body in response to a bacteria or virus.
- **Biopsy:** surgically removing a piece of tissue from the body for examination.
- **Cirrhosis:** end-stage liver disease, in which normal liver tissue is destroyed and replaced with scar tissue that blocks the blood flow between cells.
- **Co-Infection:** infected with more than one virus.
- **DDI:** an anti-HIV medication.
- **EIA:** enzyme immunoassay. The most commonly used test for hepatitis C antibodies. Used to diagnose hepatitis C infection.
- **Genotype:** the genetic make-up of an organism or a virus. There are at six known genotypes of the hepatitis C virus.
- **HAV:** hepatitis A virus.
- **HBV:** hepatitis B virus.
- **HCV:** hepatitis C virus.
- **HCV Viral Load:** see viral load test, below.
- **HIV:** human immunodeficiency virus.
- **Jaundice:** yellowing of the skin and/or eyes.
- **Liver:** the body's biggest internal organ. It filters the blood and processes nutrients, drugs and everything else that enters the body.
- **Liver Biopsy:** see biopsy, above.
- **Malaise:** a vague feeling of discomfort or uneasiness: generalized fatigue.
- **Nausea:** a feeling that one needs to vomit.

- **PCR:** Polymerase Chain Reaction. A laboratory procedure used to examine and measure virus in the blood or lymph nodes.
- **Pegylated Interferon:** An anti-HCV drug manufactured in a special way to ensure that it is absorbed into the body over a longer period of time.
- **Quantitative HCV RNA Test:** a laboratory test that looks for HCV in the blood. This test is sometimes used to diagnose acute HCV infection if exposure is so recent that an HCV antibody test would not yet be effective.
- **RIBA:** recombinant immunoblot assay, a test for hepatitis C antibodies, used to diagnose hepatitis C infection. Sometimes used as a confirmatory test after an EIA (see above).
- **Ribavirin:** an anti-HCV medication.
- **Sustained Viral Response:** having undetectable levels of HCV viral load six months after stopping treatment.
- **Vaccine:** a substance given to a person to produce or artificially increase that person's immunity to a disease.
- **Viral Load Test:** a viral load test measures the amount of virus in the blood. Measures of viral load are expressed as the number of copies of virus per milliliter of blood plasma.
- **Universal Precautions:** procedures followed in health care, public safety and other settings to minimize the risk of contracting infectious diseases

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This publication was supported by cooperative agreement 5U65PS323703 from the Centers for Disease Control and Prevention. Its contents are solely the responsibility of the authors and do not necessarily represent the official views of the Centers for Disease Control and Prevention.