

What is Hepatitis C Virus?

Hepatitis C is a virus that causes chronic inflammation of the liver and liver disease. About four to five million Americans have chronic hepatitis C and more than 15,000 new cases develop each year.

Does Hepatitis C Affect My Whole Body?

Although hepatitis C is usually symptomatic, this virus can also affect the whole body and may cause symptoms or diseases including:

- Dry mouth
- Rashes on the skin, skin blemish or discoloration
- Kidney disease or failure
- Thyroid disease
- Muscle and joint aches
- Fatigue
- Depression
- Corneal ulcers
- Sleep disorders

Warning signs of cirrhosis can include:

- Confusion, difficulty concentrating, forgetfulness (encephalopathy)
- Cirrhosis and liver failure
- Liver cancer
- Increased bleeding or bruising (cirrhosis)

How Do I Get Hepatitis C?

Hepatitis C virus is transmitted through contact with an infected person's blood. The following list describes possible sources of hepatitis C transmission:

- Sharing needles and syringes (intravenous drug abuse).
- Reused needles or medications in a medical or health care setting.
- Living and receiving medical care/surgery in a foreign country.
- Extensive surgical procedures.
- Sexual transmission (rare). The risk of sexual transmission to an individual is about 3-6% when a person is in a stable, single partner heterosexual relationship.
- Transmission from mother to baby at birth.

- Blood and blood product transfusions prior to 1992 (very rare since 1992).
- Other possible risk behaviors include tattoos, body piercing, folk medicine or using intranasal cocaine.
- Unknown – up to 15% of patients have no clear risk factors.

Is Hepatitis C Transmitted Sexually?

Yes. It is recommended that all patients having sex with multiple partners use a condom and spermicide. However, since the risk is felt to be low, patients in a single partner relationship need to use a barrier method only if they have genital sores, active bleeding, or are anxious and concerned about transmission. However, it is strongly recommended that men or women with hepatitis C who have sores in the genital area should avoid sexual contact. Anal intercourse or intercourse causing minor trauma or bleeding or during menstrual periods has a higher risk, and barrier protection is recommended.

For patients with hepatitis C, testing of spouses, babies and significant others is recommended by the Centers for Disease Control (CDC). Please discuss these issues with your doctor.

Is Hepatitis C Transmitted by Breast Milk to Infants?

There is no strong evidence that hepatitis C is transmitted through breast milk. A few studies have been done that tested breast milk, and *very rarely* is hepatitis C found. Recently, the CDC issued a statement explaining that mothers who have hepatitis C may breastfeed, but should avoid breastfeeding if their nipples are cracked or bleeding.

Can Hepatitis C be Transmitted to Other Members of My Family (Household Contacts)?

There is a slight risk of hepatitis C transmission among household contacts, so family members should not share items such as razors or toothbrushes that may transmit blood or body fluids. Women who have hepatitis C and are menstruating should avoid sexual contact. The CDC recommends that spouses or partners of hepatitis C patients be tested for hepatitis C.

Can a Pregnant Woman Give Hepatitis C to Her Baby?

The possibility of transmission must be considered when a woman with hepatitis C is deciding whether to have children. For infants who have received the hepatitis C virus

from their mother, brief elevations of liver enzymes may occur, but no chronic liver disease has been reported. It is recommended that all babies born to mothers with hepatitis C virus be tested at age 1 to determine if there is infection.

Women with both AIDS and hepatitis C are at higher risk for transmitting the virus to their babies, and research has shown that these women consistently transmit the virus to their babies at birth.

What are the Tests for Hepatitis C?

There are 3 blood tests done to test for hepatitis C:

- Hepatitis C antibody (basic test, confirms exposure)
- Hepatitis C RNA Quantitative assay by PCR (confirms infection)
- Hepatitis C Genotype (classifies disease and predicted response to therapy)

Is There a Vaccine for Hepatitis C?

No, there is no vaccine for hepatitis C. Research is ongoing but likely many years away from such a development or treatment. However, vaccines exist for hepatitis A and B. All patients with hepatitis C should have these vaccines.

What is the Current Treatment for Hepatitis C?

Pegylated interferon and Ribavirin are the medications used to treat chronic hepatitis C infection and have been standard of care since 2001. Treatment of hepatitis C using these medications requires careful monitoring, frequent lab tests and doctor visits. Discuss your treatment options with your doctor. It is very important that you modify your treatment in close consultation with your primary doctor, gastroenterologist, or hepatologist.

What is Interferon?

Interferon is a naturally occurring protein that helps to clear the hepatitis C virus from the blood and liver. Interferon also fights the formation of scar tissue in the liver and reduces liver inflammation. Pegylated interferon is an engineered, longer acting form of regular interferon.

How is Interferon Given?

Treatment with pegylated interferon is a self-administered injection beneath the skin (similar to an insulin shot for diabetes) once per week. The nurse or doctor will teach you how to give yourself an injection. In addition to the injection, most patients will also be taking ribavirin pills or capsules twice a day.

What Will Happen If I Do Not Receive Interferon Treatment for My Chronic Hepatitis C?

Your doctor will discuss staging of disease related to CHC. Successful therapy with interferon can help slow, stop, or even reverse the damage done by hepatitis C. The slowing or stabilizing of liver disease is important because patients with untreated hepatitis C have a 20% chance of developing cirrhosis (scarring of liver tissue), and 6% of patients will develop liver cancer (usually seen only in patients with cirrhosis). Those with cirrhosis may eventually need a liver transplant to survive. On average, it usually takes 20-40 years of chronic infection to develop cirrhosis if left untreated. Unfortunately, with current treatments (as of 2010), only about 30-80% of patients respond to treatment, depending on age, stage of disease, and genotype (as well as several other factors).

How Long Will I Be on Treatment?

The length of your treatment is based on your hepatitis C genotype. Many providers may also adjust length of treatment depending on your initial response:

- Genotype 1 = 48 weeks (standard; consider 24 weeks if viral clearance is seen at 4 weeks of therapy in patients without cirrhosis; consider 72 weeks if viral clearance is delayed to 24 weeks)
- Genotype 2,3 = 24 weeks (6 months)
- Genotype 4,5,6 = 48 weeks (12 months)

What is a Hepatitis C Genotype?

There are 6 Genotypes of hepatitis C found in different populations around the world. Genotypes result from viral mutations of the hepatitis C virus.

Genotypes include:

- Genotype 1: Subtype 1a is found most often in the United States, United Kingdom, and Europe. Subtype 1b is found mostly in Japan and Europe.

- Genotype 2: Subtypes 2a, 2b, 2c, and 2d are found mostly in Japan and China.
- Genotype 3: Subtypes 3a, 3b, 3c, 3d, 3e, 3f, are found mostly in Scotland and some parts of the United Kingdom.
- Genotype 4: Subtypes 4a, 4b, 4c, 4d, 4e, 4f, 4g, 4h, 4i, 4j, are found mostly in the Middle East and Africa.
- Genotype 5: Subtype 5a is found mostly in Canada and South Africa.
- Genotype 6: Subtype 6a is found mostly in Hong Kong and Macau.

Should I Have a Liver Biopsy?

A liver biopsy is the best way to know the amount of hepatitis and liver damage (including cirrhosis and fibrosis) as well as a patient's prognosis. There are some alternatives such as blood tests that can estimate degree of damage. Ask your doctor for more information on the liver biopsy process.

What Are the Side Effects of Taking Interferon?

Almost any patient taking interferon notices some side effects which are usually the worst during the first few weeks of treatment. NOTE: If the side effects become severe, further treatment options will be recommended to support your therapy. These side effects may include:

- Reduction in:
 - white blood count
 - red blood cell count
 - platelet count
- Increase in blood sugar
- Flu-like symptoms
- Nausea or loss of appetite
- Drowsiness or mental confusion
- Fatigue
- Hair thinning or loss (usually not permanent)
- Skin rash
- Eye and vision problems – immediately consult an eye doctor
- Muscle aches and pains
- Depression or mood swings (if a patient has a psychiatric history or mental illness/suicide attempts have been reported)
- Thyroid disease

- Headaches
- Weight loss
- Poor sleep

Ask for our handout regarding interferon and ribavirin side effects for a more complete list.

How Much Will the Treatment Cost?

The average cost of interferon is about \$40.00 per 5 million-unit injection. Most insurance plans pay for treatment. Some insurance plans may require a "co-payment." A co-payment is a share of cost that the patient is responsible for paying. Patients must contact their insurance company **before** treatment to understand the amount of their share of cost.

Future Treatments for Hepatitis C

There are a number of new treatments that will become available to treat HCV infection between 2011 and 2020. Higher cure rates with shorter treatment intervals appear to be the most promising aspects of these new treatments. Ask your hepatologist about the latest updates in this rapidly developing field.

How Can I Learn More About Hepatitis C?

- To attend a support group or to learn more about hepatitis C, go to www.cpmc.org/learning.
- Visit www.cpmc.org/liver.

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Note: This information is not meant to replace any information or personal medical advice which you get directly from your doctor(s). If you have any questions about this information, such as the risks or benefits of the treatment listed, please ask your doctor(s).