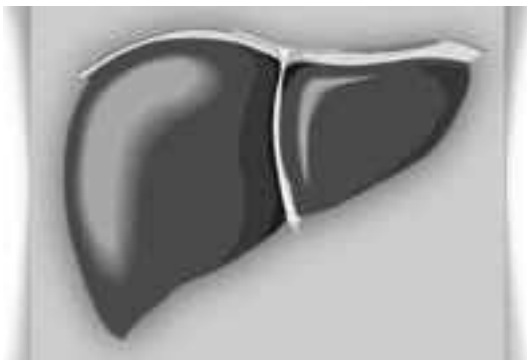


# HÉPATITIS C

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Screening

and liver  
biopsies



Text by Laurence Mersilian

We wish to thank Dr. Marc Poliquin (Gastroenterologist, CHUM Hôpital Notre-Dame) who kindly agreed to revise the contents of this brochure.

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# Screening

If you received blood products (plasma, platelets, etc.) or a blood transfusion before 1990;

If you shared drug injection equipment, even if it was only once;

Or shared accessories such as filters, spoons, pipes, bills, etc.

If you accidentally pricked yourself with a used needle,

If you shared toiletry items (toothbrush, razor, dental floss, nail file);

If you have had tattoos or body piercings without ensuring that the equipment used was sterile or single-use (ink, needle);

If you have had unprotected sex when blood was present (menstruation, anal or vaginal lesions, herpes, etc.);

**There is a risk that you have been infected with HCV and it is important for you to have a screening test.**



This is a simple blood test.

Your doctor can refer you to a lab, or you can go to a CLSC.

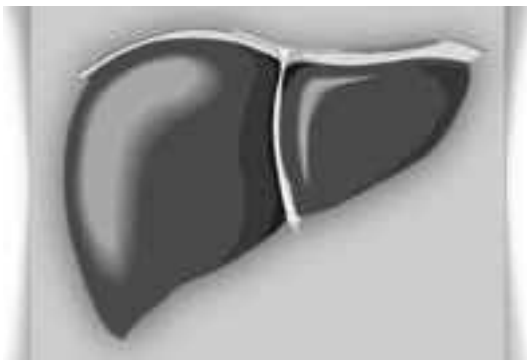
It takes 3 weeks to get the results.

This test (ELISA III) detects the antibodies that the system has produced in reaction to the viral infection. It indicates if the body has been in contact with the virus, it does not detect the virus itself.

This test should be done immediately after a high-risk behaviour or at least 2 or 3 months later (without any further high-risk behaviour in the meantime). It is important to wait for this amount of time because the virus is rarely detected during its active phase (7-9 weeks).

A positive result for the antibody does not necessarily mean that you are a hepatitis C carrier.

You may have been in contact with the virus but your body rejected it



(15-20% of patients are cured spontaneously in the months or year following the initial infection).

Bear in mind, however, that the antibodies produced generally remain in your body for life.

In all cases, this test must be confirmed by a second blood test (especially if you are already infected with HIV or have a disease that affects your immune system, because a weakened immune system is not always able to produce antibodies against the hepatitis C virus).

The second test (PCR test) is to detect the level of HCV RNA, in other words, to detect if the HCV is actually in the blood.

This test uses the PCR (polymerase chain reaction) technique and is very sensitive; it enlarges the virus which is very small.

It can also be used to determine the genotype or strain of the virus (very important in the event of treatment,

because the likelihood of a cure differs depending on the genotype).

Determination of the genotype is used to evaluate the likelihood of responding to the antiviral therapy for chronic hepatitis carriers (present in the body for more than 6 months).

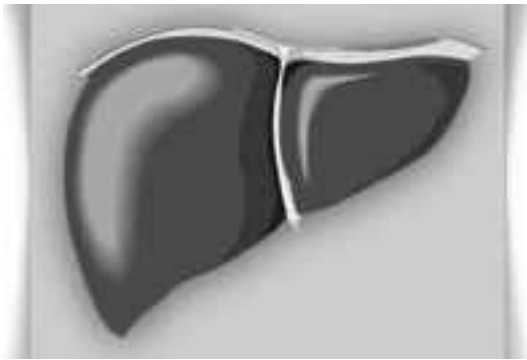
Genotypes 1, 2, 3 are the most common types in North America. Current treatment duration for patients with genotype 2 or 3 (good responders) is 6 months, with a success rate of about 88%.

For individuals with genotype 1, 4, 5 or 6, the treatment takes 48 weeks, with a success rate of about 50-55% for patients with genotype 1 and 65% for carriers of genotype 4. There are no data for genotypes 5 and 6, which are very rare.

Numerous studies show that treatment time may be significantly reduced under certain conditions. Your specialist will decide what approach to take based on your blood tests.

Conversely, the 48-week treatment program could be extended to 72 weeks in the near future to give all patients the chance of a cure. Some people react more slowly than others to the bitherapy. (At this time, the RAMQ (Medicare) does not pay for the additional 24 weeks of treatment.)

Patients with acute hepatitis (infected for less than six months) may in future have access to treatment (monotherapy, pegylated interferon injections) but for a very short time.



There are 2 types of HCV RNA tests.

The results are expressed as the number of copies.

### ***Qualitative***

To determine if the virus is present in the blood (positive) or not (negative).

Undetectable threshold <50 copies /ml of blood.

This is the most precise test.

### ***Quantitative***

To measure the amount of virus per ml of blood (viral load).

Undetectable threshold <600 copies / ml of blood.

Viral load:

#### **Low**

Between 600 and 800,000 copies /ml of blood

#### **Medium**

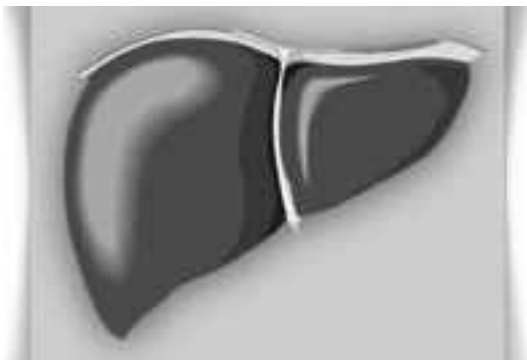
Up to 5 million copies /ml of blood

#### **High**

More than 10 million copies /ml of blood

#### **Undetectable**

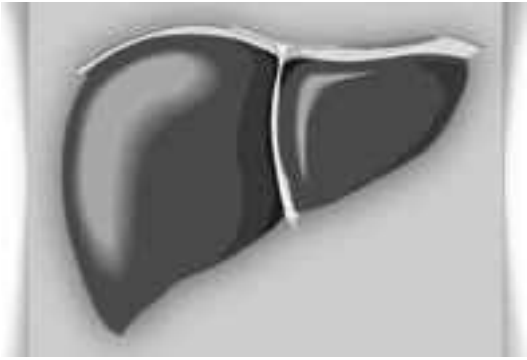
Less than 600 copies /ml of blood



If your results for HCV RNA were negative but the results for the detection of antibodies were positive, this means that you are one of the lucky 15-20% whose bodies spontaneously reject the virus. However, a single negative PCR test does not prove that you are cured. This test must be repeated 4 or 5 times over the next 1 or 2 years; if the liver enzymes are still normal and the PCR is still negative, then you are cured.

**BE CAREFUL** not to get infected again through high-risk behaviours, because there is no immunization effect.

If there is a positive result, another blood test will determine the levels of ALT/AST transaminases. You will soon become familiar with this test, which measures two of the enzymes in the liver. These enzymes produce energy for the liver cells, and when these cells are damaged by the HCV, the enzymes are released and abnormally high levels are found in the blood.



If liver cells have been destroyed by the HCV, the level of AST (aspartate aminotransferase) in the blood increases but less than the level of ALT (alanine aminotransferase), which can rise to more than 10 times the normal level before jaundice appears. If you are a chronic hepatitis C carrier, it is important to get these enzymes measured every 6 months or every year, depending on the results.

There is no direct relationship between a high level of transaminases and hepatitis symptoms, the size of the liver lesions, or the presence of cirrhosis. Only a liver biopsy will provide accurate information about the condition of the liver and hepatic activity. Depending on your results, your specialist may or may not suggest treatment. (Other factors will also be taken into consideration.)

# Liver biopsy

## **What is a liver biopsy?**

A liver biopsy consists of removing a 15 mm piece of the liver and analyzing it under the microscope.

## **Why do it?**

Usually done when there is an elevated level of transaminases and the PCR is positive for hepatitis C RNA.

## **A liver biopsy is necessary to accurately evaluate:**

- **Hepatitis C activity**  
(out of a score of A0 to A3) in terms of the degree of inflammation; ranges from mild to severe.
- **Amount of fibrosis**  
(score of F0 to F4) indicating the presence or absence of cirrhosis.
- **Possible impact on the liver**  
Lesions are graded using the METAVIR, Knodell or Ishak scoring system, depending on the hospital where the biopsy is done.

## Metavir score

	ACTIVITY (NECROSIS AND INFLAMMATION)	FIBROSIS (LESIONS ON THE LIVER)
ABSENT	A 0	F 0
MINIMAL	A 1	F 1
MODERATE	A 2	F 2
SEVERE	A 3	F 3
CIRRHOSIS		F 4

## Knodell score

LESIONS	SCORE
NECROSIS	0 à 10
LESIONS	0 à 14
INFLAMMATION	0 à 4
FIBROSIS	0 à 4
HISTOLOGIC ACTIVITY INDEX	0 à 22

## Ishak Score

FIBROSIS	SCORE
MINIMAL	0 à 2
SEVERE	3 à 4
COMPENSATED CIRRHOSIS	5 à 6

### What do I have to do before the biopsy?

You will spend a day in hospital. You should arrive early in the morning for a few blood tests to check, among other things, your coagulation time (because there is a risk of bleeding).

A few days before, it is important to stop taking certain medications that

can affect these rates, such as Aspirin, Advil, Motrin, anticoagulants, etc.). Your doctor or nurse will alert you. You will have an ultrasound to locate the exact position of your liver, measure it, check for cysts and decide where to take the sample.

### **How is a biopsy done?**

Either through your thorax (most common technique) usually guided by ultrasound (less painful).

Under a local anesthetic, the liver sample is taken by inserting a very fine needle through the skin between two ribs. It only takes a few seconds.

Or through the jugular vein (large vein on the right side of your neck),

If your blood tests show a higher risk of bleeding. Under a local anesthetic, a special needle is inserted through the vein into the liver, where a small piece of tissue is removed.

This is also very quick.



### **Is it painful?**

In the hours following the biopsy, it is quite common to feel moderate pain in the area of the biopsy or right shoulder. Painkillers will relieve this discomfort very quickly.

You should remain lying down for at least 4 hours after the biopsy to avoid any risk of bleeding.

The results will be sent to your attending physician.

### **Are there any possible complications?**

Complications from a liver biopsy are rare.

However, any surgical procedure on the human body involves some risk.

The main possible complication is a hemorrhage. However, this occurs in less than 1 in 1000 cases.

If you suffer from abdominal pain, abnormal fatigue or unusual pallor in the hours or days after you return home, contact the department where your biopsy was done.

## **THE SCIENCE OF TOMORROW**

In the near future, liver specialists should have access to new non-invasive techniques to avoid having to do biopsies.

Following is a short description of what is being done in France at this time, together with the findings.

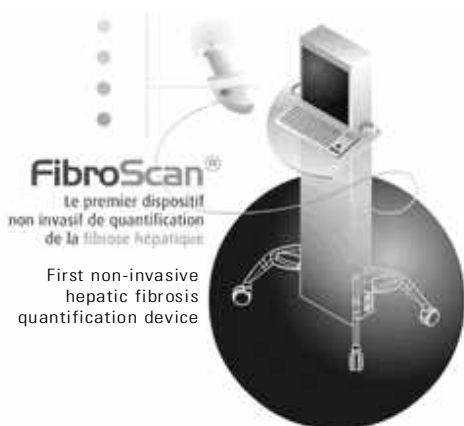
**FibroTest-ActiTest: first generation** blood tests for hepatic fibrosis. The results are often lower than those obtained with a biopsy (METAVIR score), and reliability is reported to be less than 80%.

**In patients coinfectd with HIV-hepatitis:** significant disagreements between the biopsy and FibroTest-ActiTest may exist<sup>1</sup>, making these tests useless or inaccurate.

Personalized **fibrometer** tests (6 kinds of fibrometers) are **second generation** blood tests to diagnose hepatic fibrosis.

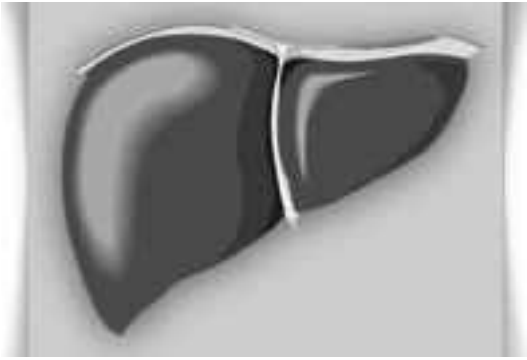
Their advantages are improved performance, adaptation to the patient's profile, and measurement of some characteristics of the fibrosis<sup>2</sup>. However, these tests are more accurate in documenting cirrhosis than its absence.

Elastometrics (**FibroSca n**<sup>®</sup>, Echosens, France) is a new **reliable**, non-invasive, painless and reproducible bedside method that can be used in adults to evaluate hepatic fibrosis quickly (< 5 min) by measuring the liver's elasticity. Regular use of **FibroSca n**<sup>®</sup> during patient follow-up could change how patients are managed<sup>3</sup>. **FibroSca n**<sup>®</sup> has not yet been approved for use in North America.



A diagnosis is acceptable if it is based on **at least two non-invasive, independent tests whose results are in agreement.**

**Fibrometer s** and **FibroSca n**<sup>®</sup> may be an alternative to biopsies in Quebec in the near future.



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Le FibroScan<sup>®</sup>, une nouvelle méthode non-invasive  
pour l'évaluation de la fibrose hépatique chez l'en-  
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avec le Fibrotest<sup>®</sup> et la biopsie hépatique

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