

/ course content

# Hepatitis C Basics

Foundational knowledge of hepatitis C for service providers who work with people living with or at risk of hepatitis C.



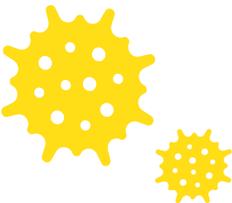
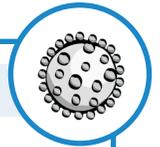
July 2021

/ course content

# 1 Introduction to Hepatitis C Basics

## At the end of this unit, you will be able to:

- 1 Define and distinguish between hepatitis A, B, and C.
- 2 Explain the basic functions of the liver and its importance for your client's overall health.
- 3 Contextualize the hepatitis C virus epidemiology in Canada.
- 4 Explain to your clients how hepatitis C is transmitted and identify the levels of risk.
- 5 Identify how your clients can protect themselves from hepatitis C.



### Quick facts

1 in 100 Canadians have been infected with hepatitis C in their lifetime.

It is estimated that 44% of people with chronic hepatitis C in Canada don't know they have it.

## What is Hepatitis?

### Hepatitis

**Hepatitis** is inflammation of the liver that can result in scarring, fibrosis and/or cirrhosis.

There are over 100 causes, which can be chemical, viral, and auto-immune.

There are different hepatitis viruses that affect the liver. The three types that are most common in Canada are hepatitis A, hepatitis B, and hepatitis C.

### Hepatitis C

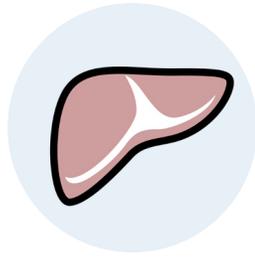
**Hepatitis C** is a liver disease caused by the hepatitis C virus.

People can get hepatitis C when the virus gets into the bloodstream. Once in the blood, it infects the liver and causes damage to this very important organ. The more damage there is, the harder it is for the liver to do its job. As a result, people can become very sick.



## Hepatitis C Virus

For some people who get **hepatitis C** the virus goes away on its own within the first six months after infection. For most people, the virus is still in the body after six months. At this point hepatitis C will not go away on its own but there is treatment that can clear (get rid of) the virus from the body.



There is no vaccine to prevent hepatitis C.

## Hepatitis: Know the A, B, Cs

### Transmission

- + **Hepatitis A:** The virus is transmitted when people unknowingly ingest fecal matter.
- + **Hepatitis B:** The virus is transmitted through blood and other bodily fluids like semen and vaginal fluids.
- + **Hepatitis C:** The virus is transmitted through blood.

### Health Impact

- + **Hepatitis A:** Most people have mild or no symptoms. It usually clears within two months and serious complications are rare.
- + **Hepatitis B:** Most adults clear the virus on their own without treatment (95% clear within 6 months of exposure). Infants and children are at significantly higher risk of developing chronic infection, especially those born to mothers with hepatitis B.
- + **Hepatitis C:** Most people initially have mild or no symptoms. About 25% recover without treatment. Those who don't are at risk of developing liver injury, cirrhosis, and liver cancer.

### Clearing the Virus

- + **Hepatitis A:** Almost all people clear the virus on their own.
- + **Hepatitis B:** Most adults (95%) clear the virus on their own.
- + **Hepatitis C:** Some people (about 25%) clear the virus on their own.

## Treatment

- + **Hepatitis A:** There is no treatment.
- + **Hepatitis B:** Treatment does not cure the infection. It mainly works to keep the virus under control.
- + **Hepatitis C:** Treatment cures more than 95% of people who complete treatment.

## Vaccine

- + **Hepatitis A:** There is a vaccine.
- + **Hepatitis B:** There is a vaccine.
- + **Hepatitis C:** There is no vaccine.

## Basic Functions of the Liver

The liver is the body's filter.

Let's take a look at The Amazing Liver comic created by Elevate NWO (see next page). It focuses on the basic functions of the liver and how the liver plays an important role in an individual's overall health.

## Transmission

### More common ways a person can get hepatitis C:

#### Sharing drug use equipment

Hepatitis C can be passed through shared drug use equipment that has come in contact with infected blood. This includes equipment used to inject drugs

(needles, syringes, filters, water, cookers), smoke drugs (pipes, stems, mouthpieces), and snort drugs (rolled paper, straws).



#### Getting a blood transfusion in Canada before 1992

Since 1992 the Canadian blood supply has been effectively and routinely screened for hepatitis C. People receiving a blood transfusion before this time were at risk of getting hepatitis C.

#### Being treated with unsafe medical and dental practices.

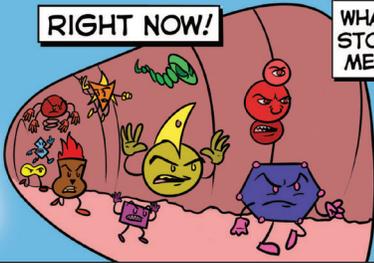
• Re-using medical, dental or surgical equipment that was not sterilized properly. In Canada, medical, dental and

# BLOOD BLOOD

## THE AMAZING LIVER

RIGHT NOW!

WHAT WILL STOP THIS MENACE?



THE LIVER!

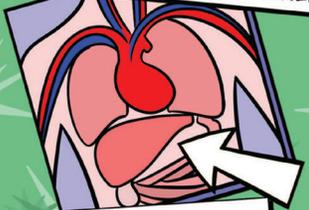
INFECTIONS, TOXINS, AND POISONS ENTER OUR BODIES THROUGH WHAT WE EAT, DRINK, BREATHE IN, AND ABSORB THROUGH OUR SKIN.

© AIDS THUNDER BAY, 2013.

THE LIVER IS AMAZING!

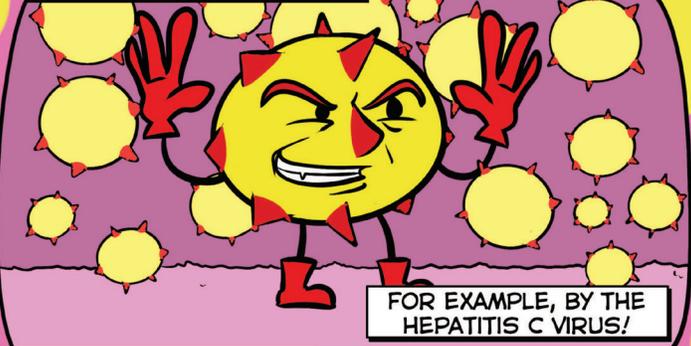


IT DESTROYS POISONOUS SUBSTANCES AND FIGHTS OFF INFECTIONS. AND IT DOES SO MUCH MORE!



AS THE BODY'S LARGEST INTERNAL ORGAN, IT'S WORKING HARD FOR YOU 24 HRS A DAY, TAKING CARE OF AT LEAST 500 FUNCTIONS!

THE LIVER IS VERY STRONG, BUT IT'S NOT INVINCIBLE! IT CAN BE ATTACKED.



FOR EXAMPLE, BY THE HEPATITIS C VIRUS!



HEALTHY LIVER



DAMAGED LIVER

HEPATITIS MEANS "INFLAMMATION OF THE LIVER". HEP C CAN CAUSE LIVER CELLS TO BE REPLACED BY SCAR TISSUE, A CONDITION ALSO KNOWN AS CIRRHOSIS (SIR-ROH-SIS).

DEPENDING ON HOW BAD THE LIVER DAMAGE GETS, THE LIVER COULD STOP WORKING PROPERLY...



...POSSIBLY LEADING TO LIVER FAILURE AND OTHER DISEASES LIKE LIVER CANCER.

YOUR LIVER KEEPS YOU HEALTHY, SO DO YOUR BEST TO KEEP IT HEALTHY!

GOOD THINGS FOR YOUR LIVER INCLUDE



WATER!

PLENTY OF EXERCISE AND REST!

FRUITS AND VEGGIES!

BAD THINGS FOR YOUR LIVER INCLUDE



FATTY FOODS!

SMOKING!

STRESS!

LOTS OF ALCOHOL!



surgical equipment is sterilized properly. In some medical facilities outside of Canada, this equipment may not be properly sterilized.

•Getting a blood transfusion or organ transplant that was not screened for hepatitis C. In Canada, donated blood has been screened for hepatitis C since 1990. Some countries did not start to screen until more recently.

## ***Less common ways a person can get hepatitis C:***

### **Sharing personal items**

Personal items such as toothbrushes, razors, and nail clippers may have traces of blood on them. When shared there is a risk of passing hepatitis C.

### **Sharing improperly sterilized tattooing or piercing equipment**

Using tattooing or piercing equipment that is being re-used or not sterilized properly.

### **Condomless sex**

- + Gay men and other men who have sex with men may be at risk of getting hepatitis C.
- + The risk of hepatitis C increases with certain factors such as condomless anal sex, HIV, sexually transmitted infections, sex where blood is present, group sex, and chemsex (using specific drugs to enhance or prolong sex).

### **Transmission from a pregnant person to their child (perinatal transmission)**

- + Hepatitis C can be passed from parent-to-child during pregnancy or childbirth, but the risk is low. Hepatitis C can also be passed during breastfeeding (or chest feeding) if the nipples are cracked and bleeding.

## ***Sexual Transmission***

A growing body of research shows that gay and bisexual men are at risk of getting hepatitis C through sexual transmission. The risk of hepatitis C increases with certain factors such as condomless anal sex, HIV, sexually transmitted infections, sex where blood is present, group sex, and chemsex.

There are a number of additional factors that are associated with the sexual transmission of hepatitis C among HIV-positive gay and bisexual men.

### **Trauma to mucosal surfaces**

If anal sex leads to trauma to the mucosal membranes of the anus, rectum and penis, this can make them more likely to bleed. Blood can increase the risk of hepatitis C transmission..

### **HIV**

The risk of getting hepatitis C is higher in men living with HIV.

### **Drug use and mucosal surfaces**

Some drugs, such as crystal meth, can dry mucous membranes making them more likely to bleed. Blood can increase the risk for hepatitis C transmission.

### **Other sexually transmitted infections (STIs)**

STIs such as herpes and syphilis can cause sores, ulcers, or lesions that could act as entry points for the hepatitis C virus.

### **PrEP**

There is some evidence that gay and bisexual men taking PrEP may have a higher risk of sexual transmission of hepatitis C.

## **Populations affected by hepatitis C in Canada**

It's important to recognize the main populations affected by hepatitis C in Canada. Each of these populations is diverse and people may belong to one or more groups.

### ***HIV-positive gay, bi, and other men who have sex with men***

- + Five percent of gay, bi and other men who have sex with men (MSM) are estimated to have a past or current hepatitis C infection.
- + Since the 2000s, increasing evidence from studies conducted in high-income countries has shown that hepatitis C may be transmitted sexually among HIV-positive MSM.
- + There is some emerging research that suggests gay and bisexual men and other MSM taking PrEP may also be at risk of hepatitis C sexual transmission.
- + Although testing for HIV and other sexually transmitted infections (STIs) may be a regular part of routine sexual health screening among gay, bi, and other MSM, there may be less awareness of the need for hepatitis C testing.

## ***Newcomers and immigrants***

- + It is estimated that immigrants make up 35 percent of all past or present hepatitis C infections in Canada.
- + The primary mode of transmission for this group is unsafe medical practices such as transfusions of contaminated blood and re-using unsterilized medical or dental equipment outside of Canada.
- + Hepatitis C isn't routinely screened during the immigration process so many immigrants may not know they have the virus.
- + Immigrants in Canada access the healthcare system less and often face cultural and linguistic barriers to services and information.

## ***People in prison***

- + Just less than one quarter of Canadian prisoners are estimated to have a past or current hepatitis C infection.
- + Two common modes of hepatitis C transmission among prisoners are sharing drug use equipment and tattooing equipment.
- + As a group, people who enter the prison system have a higher rate of hepatitis C than the general population.
- + The prison setting increases the likelihood of hepatitis C transmission due to lack of access to new drug use equipment and tattooing equipment.

## ***Indigenous peoples***

- + First Nations, Inuit, and Métis peoples are disproportionately affected by hepatitis C.
- + Indigenous peoples are over-represented among street-involved youth, people who inject drugs, people engaged in the sex trade, and in the criminal justice system — which have all been shown to significantly increase risk for hepatitis C.
- + The legacy and ongoing effects of colonization, racism, discrimination, and systemic abuse have created the conditions for Indigenous communities to be vulnerable to hepatitis C and also make it difficult to access culturally safe services.

## ***Older adults***

- + In Canada, older adults, or the baby boomer generation, have the highest rates of hepatitis C compared to other age groups.

- + The risk factors for hepatitis C transmission within this group include having received a blood transfusion or blood products in Canada before 1992.
- + Several of the same risk factors listed for other groups may also apply to older adults.
- + Many older adults were exposed to hepatitis C decades ago but may not have been tested.
- + Given that hepatitis C can take 20 to 30 years to seriously injure the liver, some of these people are now at risk for complications of liver damage.

## ***People who use drugs***

- + Almost two thirds of people who inject drugs are estimated to have a past or current hepatitis C infection.
- + The primary mode of hepatitis C transmission among people who use drugs is sharing equipment used to inject drugs. It is also possible to pass hepatitis C by sharing equipment used to smoke or snort drugs.
- + People who use drugs often experience stigma and discrimination when accessing healthcare, creating barriers to hepatitis C prevention, education, testing, treatment, and care.
- + Significant proportions of people who use drugs have been in prison and/or are Indigenous, both of which have been shown to increase vulnerability to hepatitis C.

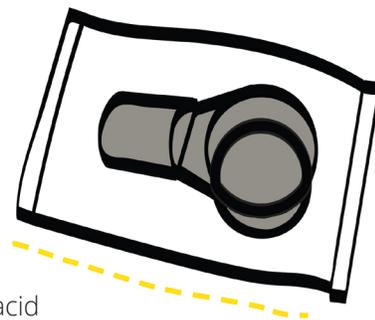
## **Prevention and Harm Reduction**

### ***Drug use equipment***

There are a number of ways to prevent hepatitis C from passing from one person to another when using drugs.

For people who inject drugs, all of this injection equipment should be new every time:

- + Needle
- + Filter
- + Cooker
- + Sterile water
- + Alcohol swabs
- + Vitamin C powder or citric acid



\*\* A tie (tourniquet) does not need to be new every time if only one person is using it.

Using new equipment to smoke (pipes, stems, mouthpieces) and snort drugs (rolled paper, straws) and not sharing with others will help prevent the risk of hepatitis C transmission in cases where crack pipes are shared.

## ***Tattoo and piercing equipment***

Tattoos and piercings are safest when the artist uses:

- + A sterile tattoo machine or piercing equipment
- + New needles
- + New ink
- + New ink pots
- + New latex or vinyl gloves

## ***Personal effects***

Hepatitis C can survive in a drop of blood that's too small to see. It can be passed from person to person when sharing personal items such as:

- + Toothbrushes
- + Razors
- + Nail clippers

## ***Sexual Transmission***

There are many strategies available to prevent the sexual transmission of hepatitis C, such as:

- + Using new condoms or gloves for each new partner
- + Using plenty of lube and creating individual lube containers for each person
- + Not sharing drug use equipment
- + Having regular medical checkups
- + Getting frequent testing for STIs and treatment if necessary

## ***Staying safe***

Service providers can support their clients to stay safe by:

- + Engaging clients in discussions with support workers, nurses or doctors about hepatitis C,
- + Encouraging regular testing for those with ongoing risk for hepatitis C
- + Sharing treatment information and options with those who have tested positive for hepatitis C
- + Sharing information on harm reduction practices (safer injecting, smoking, snorting) and connecting someone with a harm reduction program.

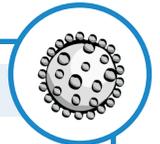


/ course content

# 2 Hepatitis C Basics: Testing

## At the end of this unit, you will be able to:

- 1 Identify and describe the two tests used for hepatitis C diagnosis.
- 2 Differentiate between acute and chronic hepatitis C infection.
- 3 Describe how hepatitis C impacts the liver over time and how damage is monitored.



Two separate tests are usually needed to determine current hepatitis C infection. The two tests are the **hepatitis C screening test (antibody test)** and the **hepatitis C confirmatory test (RNA PCR test)**.

### Meet Steve

Steve just found out he might have been exposed to hepatitis C after getting a tattoo by a friend who was using ink that had been used with someone else. Steve learns that he needs two tests. An **Antibody Enzyme Immunoassay (EIA) test** and an **RNA PCR test** are both necessary to diagnose hepatitis C. Steve has never been tested for hepatitis C before.

## Testing: Diagnosis

### ***Antibody Enzyme Immunoassay (EIA)***

The first test is a screening test, or an antibody test. This test detects antibodies to determine if a person has ever had hepatitis C infection. The screening test is an antibody test called an enzyme immunoassay (EIA). It detects the presence of hepatitis C antibodies in the blood.

The antibody test alone cannot tell whether the person has a current hepatitis C infection. A person will test positive for hepatitis C antibodies if they have hepatitis C, but also if they had a hepatitis C infection in the past and spontaneously cleared the virus or were treated and cured. A non-reactive screening test result (negative) indicates that a person does not have hepatitis C antibodies and has never had a hepatitis C infection. No further testing is usually performed.

It usually takes about six to nine weeks for the body to make enough hepatitis C antibodies to be detectable by the test.

### ***Confirmatory test (RNA PCR)***

If the screening test is reactive (positive), this means that the person has antibodies to hepatitis C and therefore has had a hepatitis C infection at some point in their life.

A confirmatory test needs to be done to determine if a person currently has a hepatitis C infection (or whether it was cleared in the acute phase or with treatment).

The second test is a confirmatory test, which is usually an RNA test. This test detects genetic material of the virus to determine if a person currently has a hepatitis C infection.

HCV RNA can be detected about one to three weeks after exposure.

## Hepatitis C Outcomes

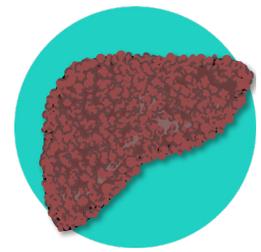
### ***Possible Outcomes***

Now that Steve knows he has hepatitis C, he has two possible outcomes.

#### **Chronic Hepatitis C**

If a person has had hepatitis C for at least six months they have chronic hepatitis C. About 75 percent of all people infected will develop chronic hepatitis C. Disease progression varies from person to person. Inflammation, fibrosis, or scarring may affect 40 - 60 percent of people who develop chronic hepatitis C, and of those, 20 percent of people may develop severe liver injury (cirrhosis). For many people, it takes 20 to 30 years to develop liver damage.

Approximately 1 - 4 percent of people with cirrhosis may go on to develop liver cancer. Cirrhosis and cancer are more common in people co-infected with HIV or hepatitis B than in people who only have hepatitis C.



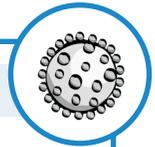
#### **Spontaneous Clearance**

About one in four people clear hepatitis C on their own (spontaneous clearance), and the others go on to develop chronic hepatitis C.

It usually happens during the acute phase, which is the first six months of hepatitis C infection.

/ course content

# 3 Hepatitis C Basics: Treatment



**At the end of this unit, you will be able to:**

- 1 Explain the goal of hepatitis C treatment and be able to communicate it to your clients.
- 2 Identify current medications used and discuss some of the significant side effects.
- 3 Identify and explain some of the factors to think about when considering hepatitis C treatment.

The goal of hepatitis C treatment is to clear the virus from the body. This is called a **sustained virological response (SVR)**.

## What is Hepatitis C Treatment?

There are a number of drug treatment combinations approved in Canada to treat hepatitis C. Here are some facts about the treatment:

- + Hepatitis C treatments cure more than 95% of people with hepatitis C.
- + Treatment means taking pills, usually for eight or 12 weeks.
- + Treatment has few, if any, side effects.
- + Hepatitis C treatment medications are called direct-acting antivirals, or DAAs.
- + DAAs directly block the ability of the hepatitis C virus to make copies of itself.



## Timeline of Hepatitis C Treatment

Before we talk about specific hepatitis C medications, let's look at the evolution of hepatitis C treatment over the last two decades.

Early hepatitis C treatment based on interferon and ribavirin had low cure rates and many

side effects.

In 2011, cure rates improved with the introduction of direct-acting antivirals (DAAs) which were taken with peg-interferon and ribavirin, but these combinations still caused many side effects.

However, newer DAA combinations no longer include peg-interferon. They have increased cure rates to over 95% with few side effects and shorter treatment times. Peg-interferon and some older DAAs are discontinued in Canada. Today, treatment combinations only use highly effective DAAs, sometimes with ribavirin.

## ***Access to Treatment***

The only way to confirm if a person has hepatitis C is to get tested. Early diagnosis and treatment is important to prevent liver damage and disease and to reduce transmission in the community.

Canadian hepatitis C treatment guidelines recommend that all people with chronic hepatitis C should be considered for treatment. In the past, treatment access was restricted based on the amount of liver injury a person had, as well as other factors such as drug use. As of 2018, these restrictions were lifted.

For most people, the cost of treatment is covered through public health insurance plans (provincial, territorial or federal). For others, private insurance from a job may cover the cost of treatment. Most people don't have to pay out of pocket for hepatitis C treatment.

In some places, multidisciplinary teams provide a supportive approach for your clients as you assist them through the treatment process. This may include a doctor, nurse, pharmacist, social worker, counselor, outreach worker, and peer worker. People with advanced liver injury may receive treatment with supervision from a specialist.

