

# Hepatitis

Viral hepatitis is a group of diseases of the liver some of which pose a serious risk to academics particularly in health sciences.

Scientists have identified six hepatitis viruses, but three – known as **A**, **B** and **C** – cause about 90 per cent of acute hepatitis cases in Canada. People infected with hepatitis can experience effects ranging from mild illness to serious liver damage. Many recover completely from an infection, while others become carriers of the disease

and can spread it to others unknowingly. It is especially important for women who are pregnant or are trying to become pregnant to get tested for hepatitis<sup>1</sup>.

**Typical symptoms:** Fever, Appetite loss, Nausea, Abdominal pain, Jaundice (yellowish colour on the skin and eyeballs)

## Hepatitis A

- transmitted by eating or drinking something that is contaminated
- can be prevented by hand washing and avoiding untreated water and suspect foods
- has a vaccine

## Hepatitis B

- the most prevalent strain of hepatitis
- transmitted through sexual contact, blood or bodily fluids
- has a vaccine

## Hepatitis C

- was first characterized in 1989
- can be prevented by adopting safer sex practices and not sharing needles
- it is estimated that only 30% of those infected know they have the virus
- has no vaccine

For more information:

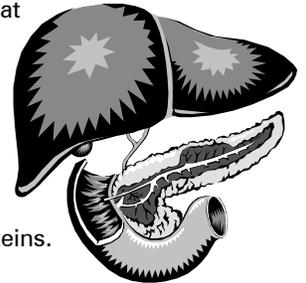
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## Why you need your liver

It is important to keep your liver healthy. It helps digest food and stores vitamins and minerals. But most important, the liver acts as a filter for chemicals and other substances that enter the body, including toxins in the air and what we eat and drink.

It is also important in the manufacture of blood and many proteins.



**HEPATITIS A** — is an infectious disease caused by the hepatitis A virus (HAV). The disease varies in severity from a mild illness lasting 1-2 weeks to a severely disabling disease lasting several months.

## Symptoms

- Three of every four persons infected with hepatitis A virus have symptoms.
- Fever, tiredness, loss of appetite, nausea, abdominal pain, dark urine, and yellowish of the skin and eyeballs (jaundice).

Infected individuals can spread the virus from 2 weeks before the symptoms begin to 2 weeks after symptoms end. However, an infected person who has no symptoms can still spread the virus. Hepatitis A does not cause long-term (chronic) damage and is usually not fatal.

## Hepatitis A — Transmission

- Found in the **feces** of infected persons.
- Spread from person to person by ingesting something contaminated with the feces of a person with hepatitis A.
- Spread under poor sanitary conditions and when good personal hygiene is not practiced.
- Transmitted through oral and anal sexual activity.
- Drinking contaminated water.
- Eating raw and undercooked shellfish harvested from contaminated water.
- Fruits and vegetables or other foods can become contaminated during handling.
- Working with an infected person does not pose the risk of Hepatitis A.

**Occupational risk** — There continues to be little evidence of risk for hepatitis A infection in the workplace. Health care workers are not considered to be at increased risk when they follow standard infection control procedures.

**Immunization** — Hepatitis A can be prevented by a variety of vaccines adapted to individual needs. Contact your family physician, a local travel clinic or the Canadian Immunization Guide to find out more about these vaccines.

## Prevention

- Good hygiene and sanitation.
- Education programs for workers about personal hygiene practices.
- **Emphasize careful hand washing is extremely important.**
- Use appropriate protective clothing and remove it at the end of the shift.
- Wash hands frequently while working before eating, drinking, or smoking.
- Avoid nail biting.



**HEPATITIS B** — is an infectious liver disease caused by the hepatitis B virus (HBV). Infections of hepatitis B occur only if the virus is able to enter the blood stream and reach the liver. Once in the liver, the virus reproduces and releases large numbers of new viruses into the blood stream.

Ten percent of people who develop hepatitis B become carriers of the disease. Their blood remains infected for months, years, sometimes for life. Seventy percent of carriers develop chronic persistent hepatitis B. Most do not appear to be ill.

The remaining 30 percent of carriers experience continuous liver disease. This condition often progresses to cirrhosis and then, after 30 to 40 years, possibly to liver cancer. At present, there is no way of curing carriers.

**INCUBATION PERIOD** — for hepatitis B ranges from 45 to 180 days with an average of 60 to 90 days. The length of the incubation period depends on the amount of virus to which a person is exposed. Exposure to a large dose of virus results in a short incubation period.

**How common is it?** — About 3000 cases of hepatitis B have been reported annually in Canada, but many cases probably remain unreported. In the United States, the Centers for Disease Control estimate that 12,000 health-care workers become infected with the hepatitis B virus each year as a result of occupational exposure to blood; 500 to 600 require hospitalization, and over 200 die each year—12 to 15 directly from hepatitis B, 170 to 200 from cirrhosis, and 40 to 50 from liver cancer.

Feces, nasal secretions, sputum, sweat, tears, urine, and vomit are not implicated in the spread of hepatitis B. Unless visibly contaminated with blood, the risk of contracting hepatitis B from these fluids in the workplace is practically nonexistent. Caution should be exercised.

**Transmission — Blood** is the major source of the hepatitis B virus in the workplace. It can also be found in other tissues and body fluids, but in much lower concentrations. The risk of transmission varies according to the specific source.

- punctures of skin with blood-contaminated needles, lancets, scalpels, or other sharps
- splashes to skin bearing minute scratches, abrasions, burns, or even minor rashes
- splashes to mucous membranes in the mouth, nose, or eyes.

Indirect contact with blood-contaminated surfaces can also transmit the hepatitis B virus. The virus may be stable in dried blood for up to 7 days at 25°C. **Hand contact with blood-contaminated surfaces such as laboratory benches, test tubes, or laboratory instruments may transfer the virus to skin or mucous.**

- bite injuries
- Saliva of people with hepatitis B can contain the virus, in very low concentrations. Injections of infected saliva can transmit the virus. There are no reports of people getting hepatitis B from mouth contact with infected CPR manikins or mouthpieces of musical instruments.
- semen, vaginal secretions, and breast milk
- can be transmitted during unprotected sexual intercourse, and from mother to infant during birth and through breast feeding
- Synovial fluid (joint lubricant), amniotic fluid, cerebrospinal fluid, and peritoneal fluid (found in the abdominal cavity) can contain the hepatitis B virus. Risk of transmission to workers is not known.
- Feces, nasal secretions, sputum, sweat, tears, urine, and vomit not implicated in the spread of hepatitis B. Unless visibly contaminated with blood the risk of contracting hepatitis B from these fluids in the workplace is practically nonexistent. Caution should be exercised.

## Hepatitis B — Occupational risk

- persons repeatedly exposed to blood or blood products or those who are at risk of needle stick injury
- cadaver work (e.g. research), medical education
- dentists, dental assistants, and dental hygienists
- certain staff members of institutions for the developmentally handicapped



- staff of institutions where workers may be exposed to aggressive, biting residents
- embalmers

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## Immunization — Workers at risk

**Before Contact** — Two recombinant DNA hepatitis B vaccines are licensed in Canada. Both provide safe, reliable protection from hepatitis B when used either before or immediately after exposure to the virus. Tests show 90 to 95 percent of vaccinations of healthy people result in the development of resistance against hepatitis B. At present, vaccination is the surest way to avoid acquiring hepatitis B as an occupational disease.

**After Contact** — Workers who experience needle stick injuries, splash exposures to blood from carriers, or bite injuries should immediately seek medical attention. In some jurisdictions, local legislation outlines the procedure for treating these injuries.

If the blood is known to contain the hepatitis B virus, and the exposed worker has not been vaccinated or does not have antibodies against hepatitis B, post-exposure immunization is strongly recommended to prevent the development of hepatitis B.

**Vaccination** — against hepatitis B is usually recommended within seven days of exposure. Depending on the specific circumstance, hepatitis B immunoglobulin is sometimes recommended also. Immunoglobulin is a contains antibodies which attack the hepatitis B virus. It is given as quickly as possible, preferably within 24 hours of the incident.

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## Hepatitis B — continued...

**Symptoms** — The extent of illness depends on original size of dose of the virus, route of exposure, and specific response of the infected individual.

- General discomfort, fatigue, lack of appetite, skin rash or possibly nausea, vomiting or other flu-like symptoms.
- In a relatively few cases, these symptoms are followed by jaundice causing skin to yellow and urine to darken—typical signs of a malfunctioning liver. An accumulation of a waste product, called bilirubin, in the blood causes this yellowish colour usually subside gradually within 3 to 4 weeks and most patients fully recover, becoming immune to the disease.
- In severe cases, there are extreme reactions resulting from liver failure.

More than half of hepatitis B infections occur and pass without noticeable symptoms. Rarely is medical attention needed. Often, the infection disappears without treatment. Laboratory testing is used to determine whether someone has had hepatitis B.

### Treatment

- no specific treatment
- limit physical activity although not necessarily restricted to bed-rest
- drink clear liquids during the early stages of the infection and avoid high-protein diets and alcohol
- hospitalization may be required for patients who suffer from severe vomiting and are unable to maintain adequate nutritional levels

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## HEPATITIS C — is caused by the hepatitis C virus (HCV). Infections of hepatitis C occur only if the virus is able to enter the blood stream and reach the liver.

About half of all people who develop hepatitis C never fully recover and can carry the virus for the rest of their lives.

They will have chronic hepatitis C, and some may eventually develop cirrhosis of the liver and liver failure.

**Incubation Period** — The incubation period ranges from 2 weeks to 6 months, most commonly 6 to 9 weeks.

**Symptoms** — fever, nausea and vomiting, loss of appetite, stomach pain, extreme fatigue, and yellowing of the skin and eyes (jaundice).

Some people who are infected with hepatitis C virus have no symptoms and can infect others without knowing it. These persons are at risk of becoming ill at some time in the future. It may take 10 years to develop symptoms.

### Transmission

- spread primarily by exposure to **blood**. Some people who get hepatitis C do not know how they were infected with the virus.
- sharing needles to inject drugs
- through exposure to blood in the workplace. The risk of getting this virus from a blood transfusion is minimal but still exists. All donated blood is now screened for the hepatitis C virus.
- tattoos, body piercing or acupuncture

**Occupational Risk** — Workers who are repeatedly exposed to human blood and who are at risk of needle stick injuries.

## Hepatitis C — continued...

**Immunization** — There is currently no vaccine for hepatitis C.

**Prevention** — Infection control precautions include Universal Precautions, most particularly for:

- semen, vaginal secretions, synovial fluid, cerebrospinal fluid, pleural fluid, peritoneal fluid, pericardial fluid, amniotic fluid;
- saliva (in the dental setting, where it is likely to be contaminated with blood);
- when piercing or tattooing, choose a reputable licensed person who uses only fresh, single-use, disposable needles, and disinfected & sterile equipment (bleach may not kill the hepatitis C virus).

### HEPATITIS B & C — Safe work

**practices.** Universal Precautions are to be used in conjunction with other control measures. Washing hands whenever gloves are removed or whenever the skin contacts potentially infectious fluids.

- safe collection of fluids and tissues for disposal in accordance with local, provincial, territorial, or federal regulations
- safe removal and disposal or decontamination of protective clothing and equipment
- procedures to follow in the event of spills or personal exposure such as needle stick injuries
- specific and detailed procedures to observe when using and disposing of needles and other sharp objects

### Personal protective equipment (PPE)

- gloves to protect the hands and skin,
- masks and eye protection together or a face shield to protect mucous membranes of the eye, nose and mouth in any situation where splashes of blood or body fluids may occur, and
- aprons to protect clothing from splashes with blood, or gowns if large quantities of blood are present or anticipated<sup>2</sup>.

### References

<sup>1</sup> Health Canada/Santé Canada :  
[www.hc-sc.gc.ca](http://www.hc-sc.gc.ca)

<sup>2</sup>Adapted from: Canadian Centre for Occupational Health & Safety (CCOHS):

