

HEPATITIS C AND G

Disease Overview

Hepatitis C is a viral infection of the liver caused by the hepatitis C virus (HCV). Hepatitis C can cause acute hepatitis and progress to chronic liver disease, including cirrhosis of the liver and in some cases, liver cancer. About 15-25% of individuals infected by HCV will clear the virus usually during the acute phase (ie first 6 months of infection). The other 75-85% will become a chronic carrier, 5-20% will develop cirrhosis of the liver.

Hepatitis G Virus (HGV) is also known as GB virus-C (GBV-C). HGV and hepatitis C virus (HCV) were discovered about the same time, and are thought to be different strains of the same virus. Persons infected with HGV are also infected with HCV. In addition to HCV, HGV is often found in co-infections with other viruses, such as hepatitis B virus (HBV) and Human Immunodeficiency Virus (HIV). No clinical illness has been identified with HGV.

Symptoms

In the acute phase people are usually asymptomatic or have mild symptoms. Only 20-30% of the patients show any symptoms, which may include anorexia, vague abdominal pain nausea and vomiting; progression to jaundice is relatively uncommon.

No clinical illness has been identified with HGV.

Reservoir

Humans for both HCV and HGV.

Mode of Transmission

Hepatitis C transmission is primarily parental including drug injection use; exposure to blood contaminated inadequately sterilized instruments and needles used in medical and dental procedures, tattooing, piercing and other activities that break the skin, transfusion of blood or blood products from unscreened donors or blood products that have not undergone viral inactivation.

Sexual transmission and mother-to-child transmission are uncommon.

The mode of transmission for HGV are the same as HCV.

Incubation Period

Ranges from 2 weeks to 6 months (commonly 6-9 weeks). The variation depends on viral load, mode of transmission, and other host factors.

Period of Communicability

From one or more weeks before onset of the first symptoms. Persons remain infectious as long as they are infected with the virus.

Risk Factors

The following persons are known to be at increased risk for HCV infection:

- Current or former injection drug users, including those who injected only once many years ago.
- Current and former drug users who practice intranasal and inhalation drug use.
- Person who uses drugs that shares contaminated drug paraphernalia, such as: pipes, straws, spoons, needles and cookers.
- Recipients of blood transfusions or organ transplants before July 1992. In 1992 laboratory testing of blood and organs became available.
- Chronic hemodialysis patients.
- Persons with known exposures to HCV, such as health care workers after needlesticks involving HCV-positive blood.
- Persons with HIV infection, other STIs or high risk sexual behavior.
- Children born to HCV-positive mothers.
- Persons who have tattoos, body piercings, scarification or other frequent other personal service settings(ie acupuncture, electrolysis) which break the skin .
- Household contacts of HCV or drug users if they shared personal items such as toothbrushes, nail clippers, razors.
- Sexual contact (low risk) if people engage in high risk behavior and where there is a chance of exposure to HCV infected blood.
- Persons who are and were incarcerated or institutionalized.

Surveillance Case Definition¹

Confirmed case - Acute or recent infection

Detection of hepatitis C virus antibodies (anti-HCV) or hepatitis C virus RNA (HCV RNA) in a person with discrete onset of any symptom or sign of acute viral hepatitis within 6 months preceding the first positive HCV test AND negative anti-HAV IgM, AND negative anti-HBc IgM or HBsAg tests AND serum alanine aminotransferase (ALT) greater than 2.5 times the upper normal limit

OR

Detection of hepatitis C virus antibodies (anti-HCV) in a person with a documented anti-HCV negative test within the preceding 12 months

OR

Detection of hepatitis C virus RNA (HCV RNA) in a person with a documented HCV RNA negative test within the preceding 12 months

Confirmed case – Unspecified (including chronic and resolved infections)

Detection of hepatitis C virus antibodies (anti-HCV)

OR

¹ Public Health Agency of Canada. Case definitions for communicable diseases under national surveillance. updated 2011;unpublished

Detection of hepatitis C virus RNA (HCV RNA)

NOTE:

If diagnosis is based on anti-HCV alone, it should be confirmed by HCV RNA, immunoblot, a second manufacturer's EIA, or based on an EIA signal to cut-off ratio predictive of a positive immunoblot. If HCV-RNA is used solely to confirm active infection, a repeat test is recommended. The HCV seroconversion window period is approximately 5-10 weeks. It is estimated that 30% of acute infections may be missed if anti-HCV is the only marker of infection used during this period. HCV-RNA is detectable within two to three weeks of infection and, in the context of clinical illness, can identify acute HCV infection even in the absence of anti-HCV.

Diagnosis and Laboratory Guidelines

The diagnosis of HCV infection is based on the detection of anti-HCV antibodies in serum, generally by means of enzyme immunoassays (EIA). These tests can detect antibodies within 6 to 8 weeks of infection. There is no anti-HCV IgM test available. All serological tests will give total antibodies count. Molecular methods include RT-PCR and genotyping. RT-PCR is mostly used for determining viral load. Genotyping is sometimes used for treatment purposes, and it also can be of use for epidemiological purposes.

The testing of newborns of infected mothers, HCV serology is not reliable during infancy due to passively transferred maternal antibody which may persist for up to 18 months. Early diagnosis of HCV infection is very unlikely to alter management, but there may be significant parental anxiety about the possibility of infection. In such an instance, the HCV RNA test at a minimum of two months of age may be requested as it is very sensitive and specific. If the initial HCV RNA test proves positive, then the infant will require testing for HCV RNA and aminotransferase levels every six months to determine whether chronic infection or spontaneous clearance will ensue. If the initial HCV RNA test is negative, serology should be performed at 12 to 18 months of age to confirm seroreversion.

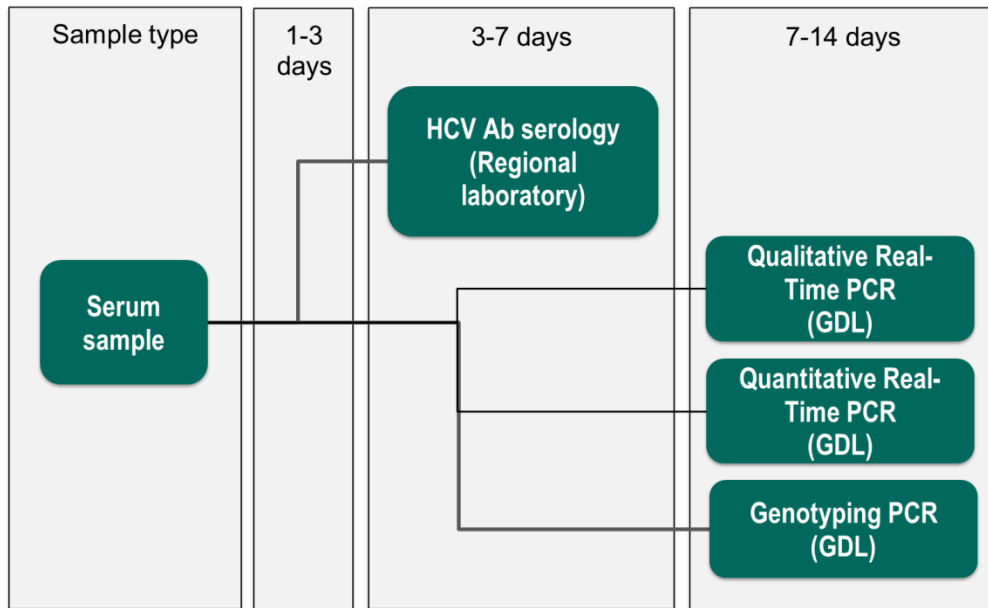
Cord blood may be contaminated by maternal blood and should not be used for anti-HCV or HCV RNA testing.

The following tests are available in New Brunswick laboratories to detect HCV infection:

- Screening tests for antibody to HCV (anti-HCV)
- Qualitative tests to detect presence or absence of virus (HCV RNA polymerase chain reaction [PCR])
- Quantitative tests to detect amount (titer) of virus (HCV RNA PCR)

Laboratory Testing

An overview of testing timelines for samples after the sample has been received by the laboratory. Turnaround times are averages and may change depending on the urgency of the situation.



Reporting

Per Policy 2.2 Disease and Event Notification to OCMOH and Disease and Event Reporting section.

- Enhanced Surveillance. For all confirmed cases an enhanced surveillance form should be completed and information sent to OCMOH on a monthly basis (STBBI Database).
- Routine Surveillance (RDSS) for all confirmed cases

For laboratory confirmed cases who have a history of donation or transfusion (blood/blood products), a *Disclosure of Information to Canadian Blood Services Transfusion Transmissible Infections (TTI)* form must be completed and sent to the CD Specialist at Canadian Blood Services upon receipt of information.

Case Management

Education

The case or relevant caregiver should be informed about:

- Nature of the infection, length of the communicable period, and mode of transmission, including education and guidance on breastfeeding for new mothers who are infected
- Sexually Transmitted and Blood Borne Infections Precautions
- Safer Sex Practices
- Harm Reduction practices and services available including safer Injection Practices

Investigation

- Ensure the case will see a clinician for medical follow-up.
- STI testing is recommended for clients involved in relevant risk activities.

- Discuss eligibility for hepatitis A and hepatitis B vaccine. Testing may have been requested by the physician. Persons who are anti-HCV positive and are not already immune to hepatitis A and hepatitis B, are eligible for provincially funded vaccine.

Social Distancing/Exclusion

Individuals infected by HCV should not be excluded from work, school, play, child care, or other settings on

The MOH should be consulted if a case is in an occupation or activity that poses or may pose a risk to others.

The case should be informed never to donate blood, organs, tissue or semen

Treatment

Any patient known to have hepatitis C should be referred to a specialist for further assessment and treatment.

Immunization

There is no vaccine available for hepatitis C.

Individuals infected with hepatitis C are eligible to receive publicly funded hepatitis A and B as well as the Pneumococcal P-23 vaccine. Refer to the New Brunswick Immunization Program Guide for more information.

Contact Management

Education

Per case management.

Investigation

Advise that *all* contacts who have risk factors for HCV infection should be appropriately tested:

- Persons who are identified as contacts of injection drug users should be given priority for follow-up by public health personnel and should be notified of possible exposure to HCV by the case, the clinician or by public health personnel.
- Short term sexual contacts should be assessed for risk behaviors and appropriate testing for STIs, hepatitis C and other BBIs should be recommended. Most long-term sexual partners of HCV positive persons test anti-HCV negative, however, they may elect to be assessed by their physician.
- Infants born to HCV positive mothers should be followed up by a pediatric infectious disease physician or an expert in hepatitis C infection.

Refer to the [Public Health Agency of Canada's Infection Control Guideline Primary Care Management of Chronic Hepatitis C - Professional Desk Reference 2009](#) for more information on testing.

Exclusion/ Social Distancing

Contacts of HCV cases should not be excluded.

Prophylaxis

Not applicable

Outbreak Management

Activate the local outbreak plan when an outbreak is declared.

Management of special situations

Health Care Workers

In any situation in which a health care worker, who is HCV positive, is uncertain about the potential transmission risks of HCV or proper practices to minimize the risk to clients, he or she should consult with an employee/occupational health professional or an infection prevention and control professional.