Hepatitis C

CHAPTER CONTENT

Information for this chapter was adapted with permission from Alberta Health's Public Health Disease Management Guidelines: Hepatitis C (Acute) and Alberta Health's Public Health Disease Management Guidelines: Hepatitis C (Chronic)

1. CASE DEFINITION

Confirmed Case: Acute

- Laboratory confirmation of one of the following:
  - Confirmed detection of hepatitis C virus (HCV) 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 the previous 6 months of current positive test, **AND**
  - Negative anti-HAV IgM and negative anti-HBc IgM or HBsAg test***, **AND**
  - Serum alanine aminotransferase (ALT) greater than 2.5 times the upper normal limit

    OR
  - Confirmed detection of hepatitis C virus antibodies (anti-HCV) or hepatitis C virus RNA (HCV RNA) 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, excluding those undergoing HCV treatment or therapy

    OR
  - Individuals who have had a sustained virologic response (SVR) for six months post-treatment and become hepatitis C virus RNA (HCV RNA) positive within 12 months of SVR

should be considered as having an acute or recent infection for surveillance purposes, even though some of these cases may be post-treatment relapses

*Onset may be discrete but is more often insidious. Disease flares in chronic HCV infection may present similar symptoms and signs. More than 90% of acute infections are asymptomatic.
**Clinical symptoms and signs of acute viral hepatitis include anorexia, abdominal discomfort, nausea, vomiting, malaise, fatigue, dark urine, pale stools and jaundice.
***If only HBsAg was tested for and was positive, this should not automatically rule out acute hepatitis C (the person could be co-infected).

Confirmed Case: Chronic

- Detection of anti-hepatitis C antibodies (anti-HCV) and should be confirmed by a second manufacturer's EIA, immunoblot or nucleic acid (e.g., PCR) for HCV-RNA;

  OR

- Detection of hepatitis C virus RNA (HCV-RNA)

2. DIAGNOSIS

- An HCV infection diagnosis is based on positive antibodies to HCV (anti-HCV) and/or positive hepatitis C virus RNA (HCV RNA). The Centers for Disease Control and Prevention (CDC) recommends that all specimens that are HCV antibody reactive should be tested for HCV RNA in order to confirm current HCV infection, versus resolved infections.
- A positive HCV RNA is an indication of viremia (i.e., HCV is detected in the blood indicating viral replication). HCV RNA detection does not distinguish between acute or chronic HCV infection. From a management perspective, only individuals with HCV RNA detected will be considered for antiviral treatment.
- Detection of HCV RNA is a useful diagnostic tool in immunocompromised individuals who might not mount an antibody response and be anti-HCV negative.
- For infants born to HCV positive mothers, anti-HCV testing should not be performed until after 18 months of age when maternal antibodies are cleared. To assess for vertical transmission, testing for HCV RNA should be considered after 4-12 weeks post-partum to avoid false negative results. Cord blood should not be used because of potential cross-contamination with maternal blood.
- Seroconversion: The HCV seroconversion window period is approximately 5-10 weeks, and it is estimated that 30% of acute infections may be missed if anti-HCV is the only marker of infection used during this time period.
- HCV RNA is detectable within 2-3 weeks of infection and, in the context of clinical illness, can identify acute HCV infection even in the absence of anti-HCV. Confirmation of acute infection requires a documented seroconversion (see case definition above).
- An individual may be infected with more than one genotype, and reinfections may occur with the same genotype.
- For more information, refer to the Alberta Provincial Laboratory Guide to Services

3. REPORTING

As set out in the *NWT Public Health Act, Reportable Disease Control Regulations (Section 4) and Disease Surveillance Regulations (Sections 6-10 and Schedule 3)* health care professionals and laboratories are legally required to report a diagnosis or formed opinion of a reportable disease to the Office of the Chief Public Health Officer (OCPHO) or designate **within the timeframe identified in the regulations**.

Health Care Professionals

- Confirmed or probable cases are to be reported to the Office of the Chief Public Health Officer (OCPHO) by telephone (867) 920-8646 **immediately** after diagnosis is made or opinion is formed, ***AND***
- Complete the Enhanced Hepatitis B and C - Case Investigation Form and report to the OCPHO by fax (867) 873-0442 within **24 hours**.

Laboratories

- Report all positive results to the OCPHO by fax (867) 873-0442 within **24 hours.**

4. OVERVIEW

Causative Agent

- Hepatitis C virus is an enveloped RNA virus in the Flaviviridae family, genus *Hepacivirus*
- At least 6 major genotypes and approximately 100 subtypes exist. Type 1a and 1b are the most common types in North America

Clinical Presentation

- More than 90% of people infected with HCV have either no symptoms or exhibit only mild symptoms of illness, such as anorexia, vague abdominal discomfort, nausea and vomiting. In acute infections, the most common symptoms are fatigue and jaundice
- A person with acute disease may have elevations in serum ALT levels, often in a fluctuating pattern
- Symptoms of acute infection may last 2-12 weeks
- Although initial illness may be asymptomatic or mild, 50–80% develop chronic HCV
- Up to 70% of individuals with chronic HCV have evidence of active liver disease; however, the majority are not clinically ill and symptoms are often non-specific. Symptoms and test results, including liver enzyme tests, tend to fluctuate in chronic HCV. Many people complain of chronic or intermittent fatigue

Major Complications

- About half of those with chronic HCV will develop cirrhosis or hepatocellular carcinoma (HCC), generally more than 20 years after infection, although more rapid progression can occur
- HCV is the leading cause for liver transplants worldwide

- Alcohol consumption, male gender, older age at time of infection (> 40 years old), and co-morbidities including obesity, co-infection with hepatitis B, co-infection with HIV are factors that accelerate liver disease progression in people with HCV

Transmission

- Transmission of HCV is through parenteral exposure to HCV infected blood, such as transfusion of blood from unscreened donors or through injection drug use (IDU)
- Transmission may occur with non-injection drug use, such as sharing of straws and crack pipes when snorting or smoking drugs
- Transmission may occur with needle activities if improperly sterilized, such as tattooing, piercing, electrolysis and acupuncture
- Household transmission has been reported through sharing of sharp instruments/personal hygiene equipment
- The risk from sexual transmission is low (probably less than 5%), but can occur if blood is present
- The risk of vertical transmission (mother-to-baby) has been estimated to be between 1–6%
- Breastfeeding is considered safe as long as nipples are not cracked and bleeding, and transmission through breast milk is unlikely
- Risk of transmission from occupational percutaneous exposures to blood is low (1.8%, range 0-7%)

Incubation Period

- Usually 2 weeks to 6 months, averaging 6-9 weeks.

Clinical Guidance

- For patient specific clinical management, consult a healthcare professional such as an internist, pediatrician, or infectious disease specialist, or clinical practice guidelines.

5. PUBLIC HEALTH MEASURES

Key Investigation

- Determine the reason for the test (from the case or physician).
- Assess risk factors for potential source of infection: IDU (priority follow-up), blood body fluid exposures (e.g., needle sharing, piercing, tattooing, acupuncture), receipt of blood/tissue/organ between 1978 and 1990, receipt of blood/tissue/organ at any time in a developing country, incarceration, workplace or non-occupational exposure, any invasive medical or dental procedures (e.g., hemodialysis).
- Assess sexual relationships and high-risk sexual behaviors.
- Ascertain status of co-infection with other blood borne infections (i.e., HIV, hepatitis B).
- Ascertain co-infection with STI (i.e., chlamydia, gonorrhea, syphilis)

- Ascertain co-infection with tuberculosis (as may impact treatment)
- Determine pregnancy status
- Determine history of donation of blood, tissue, or organs.
- Identify any household or intimate contacts for potential blood exposure from case. Contacts include those with exposure from 6 months prior to the onset of symptoms in the case:
  - Persons who may share needles
  - Persons who share personal use items (e.g., razors, toothbrushes)
  - Sexual partners
  - Persons with an identified exposure to blood or other body fluids capable of producing HCV

Management of Cases

- Public health may contact the physician to coordinate case management, which includes:
  - Public health follow-up including client education, mainly regarding modes of transmission and reducing the risk of transmission to others,
  - Follow-up of contacts,
  - Provision of resources, including information about community support agencies,
  - Testing for other types of hepatitis (to determine the need for hepatitis A and B vaccine).
  - HIV testing (recommended for clients involved in relevant risk activities).
- Assess need for Hepatitis A and Hepatitis B vaccine. Persons who are anti-HCV positive and are not already immune to Hepatitis A and Hepatitis B, may be eligible for publicly funded vaccine.
- Encourage a healthy lifestyle, including alcohol avoidance, to minimize liver damage.
- Provide education regarding reducing the risk of transmission, including:
  - The risk of transmission increases with multiple sexual partners, co-infection with HIV, and high-risk sexual behavior. Sexual partners should be informed and testing offered, and recommendation to use condoms in short-term sexual relationships.
  - Not sharing personal items (e.g. razors, nail clippers, toothbrushes) with household members. Cuts and open skin sores should be covered.
  - Not donating blood or blood products
  - Health care workers (HCW) should consult with their health and safety representative and occupational health and safety (OHS)
  - For women who are or are planning on becoming pregnant, counselling on the potential risks of vertical transmission during delivery
- Referral to a clinician for management and treatment
  - Treatment (e.g., antivirals) is determined on an individual basis, and is generally based on genotype and severity of liver disease, and should be initiated in conjunction with a medical specialist
  - The response to treatment and duration of therapy depends on the hepatitis genotype
  - Treatment may prevent progression of liver disease or development of hepatocellular carcinoma

Management of Contacts

- Contacts exposed through sharing of injection drug equipment should be prioritized for public health follow-up and notified of possible exposure to HCV by the case or by public health.
- Short-term sexual contacts should have a risk assessment, and appropriate testing for STIs, hepatitis C, hepatitis B and HIV should be recommended. They should be notified by the case or by public health.
- Long-term sexual partners of HCV positive persons may elect to be assessed by their physician.
- Infants born to HCV positive mothers should be followed up by a specialist for further assessment and testing.
- OCPHO will assist with contacting partners living out of the territories

Preventative Measures

- Harm reduction counseling and education on the prevention of blood borne pathogens. Harm reduction efforts may include participation in needle/drug-equipment-exchange programs and substance use treatment and programs.
- Harm reduction for safer sexual practices, including condoms and barriers
- Infection prevention and control measures for personal services settings and health care settings
- Policies and procedures for occupational exposures, including training on prevention of exposures and reporting and management of exposures
- The Public Health Agency of Canada recommends screening for HCV in asymptomatic Canadian adults with risk factors.

6. PUBLIC & HEALTH PROFESSIONAL EDUCATION

For more information about Hepatitis C:

- Government of Canada: Hepatitis C
- NWT Health and Social Services: Hepatitis C
- Alberta Public Health notifiable disease management guidelines
- BC Center for Disease Control: Hepatitis C
- For more information about hepatitis C (USA, Worldwide):
  - Centers for Disease Control and Prevention: CDC/Hepatitis C
  - World Health Organization: WHO/Hepatitis C

7. EPIDEMIOLOGY

- For more information on the epidemiology of Hepatitis C in the Northwest Territories (NWT) see: Epidemiological Summary of Communicable Diseases HSS Professionals

8. REFERENCES

Additional resources used in this chapter include:

1. Alberta Health Notifiable Disease Guidelines: https://www.alberta.ca/notifiable-disease-guidelines.aspx
2. Alberta Health Services The Provincial Laboratory for Public Health (ProvLab): http://www.provlab.ab.ca/guide-to-services.pdf
3. Centres for Disease Control and Prevention: https://www.cdc.gov/hepatitis/hcv/
4. Case Definitions for Communicable Diseases under National Surveillance - 2009: http://www.phac-aspc.gc.ca/publicat/ccdr-rmtc/09vol35/35s2/index-eng.php
5. Government of Canada website - Hepatitis C: http://healthycanadians.gc.ca/diseases-conditions-maladies-affections/disease-maladie/hepatitis-c-hepatite/index-eng.php
6. NWT Infection Prevention and Control Manual: http://www.professionals.hss.gov.nt.ca/sites/default/files/infection-control-manual.pdf
7. NWT Public Health Act 2009: https://www.justice.gov.nt.ca/en/files/legislation/public-health/public-health.a.pdf
8. Hepatitis B and C – Case Investigation form: http://www.professionals.hss.gov.nt.ca/tools/forms/communicable-disease
9. NWT Clinician's Desk Reference – Hepatitis C Case Definition: http://www.professionals.hss.gov.nt.ca/sites/default/files/hcv_clinicians_desk_reference_b_0.pdf
10. Public Health Agency of Canada: https://www.canada.ca/en/public-health/services/diseases/hepatitis-c/health-professionals-hepatitis-c.html#a2
11. World Health Organization on hepatitis C: http://www.who.int/news-room/fact-sheets/detail/hepatitis-c