

## 2.8 Hepatitis A

### Etiology

Hepatitis A virus (HAV) is a 27-nm picornavirus (i.e., a positive-strand RNA virus). It has been classified a *Hepatovirus*, a member of the family *Picornaviridae*.

### Case Definition

#### Confirmed Case

Laboratory confirmation of infection in the absence of recent vaccination:

- detection of immunoglobulin M (IgM) antibody to hepatitis A virus (anti-HAV)

**AND**

- acute clinical illness (see section 5.0)

**OR**

- an epidemiological link to a person with laboratory-confirmed hepatitis A infection.

#### Probable Case

Acute clinical illness<sup>6</sup> in a person without laboratory confirmation of infection who is epidemiologically linked to a confirmed case.

### Clinical Presentation

Hepatitis A is one of the oldest diseases known to mankind. In persons infected with HAV, the virus replicates in the liver, is excreted in bile and shed in stool. The infection is typically an acute, self-limited illness.

Acute clinical illness typically has an abrupt onset of fever, malaise, anorexia, nausea and vomiting, abdominal discomfort, dark urine and pale stools (referred to as prodromal phase), followed by an icteric phase, during which jaundice develops. The icteric phase generally begins within 10 days of the onset of the initial symptoms. The disease varies in clinical severity from a mild illness lasting 1–2 weeks, to a severely disabling disease lasting several months, although this is rare. Prolonged or relapsing disease lasting up to twelve months can occur in approximately 15% of cases. Fulminant hepatitis is rare but can occur more frequently in individuals with underlying liver disease. The likelihood of developing symptomatic illness from HAV infection is directly related to age, with only 30% of infected children younger than 6 years of age showing symptoms; if illness does occur, few of these children will have jaundice. Older children and adults are more likely to have symptomatic illness with jaundice occurring in more than 70% of cases. Generally, severity increases with age, but complete recovery without sequelae or recurrences is the rule. Chronic infection does not occur. The reported case fatality rate among reported cases of all ages is approximately 0.3%, but can be higher among older persons (approximately 2% among persons 40 years of age or greater).

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<sup>6</sup> Acute clinical illness is characterized by discrete onset of symptoms including fever, malaise, anorexia, nausea and abdominal pain followed by jaundice or elevated aminotransferase levels within a few days.

## Diagnosis

Hepatitis A is not clinically distinguishable from other forms of viral hepatitis; therefore the diagnosis is established by the demonstration of IgM antibody to HAV (anti-HAV IgM) in the serum of acutely or recently ill persons. Anti-HAV IgM usually becomes detectable 5–10 days before the onset of symptoms and may remain detectable for up to 6 months. IgG appears in the convalescent phase of infection and persists for life, conferring lifelong immunity. For confirmation on laboratory specimens go to the public health laboratory web site [www.publichealthlab.ca](http://www.publichealthlab.ca) or call 709-777-6583.

## Epidemiology

### Occurrence

Hepatitis A occurs sporadically worldwide and is endemic throughout the developing world. People born and raised in developing countries, and people born in developed countries before 1945 have usually been infected in childhood with an asymptomatic or mild case of hepatitis A and are likely to be immune to the disease. Individuals from developed countries born after 1945 are at risk for acquiring hepatitis A, especially when traveling to endemic areas. In Canada there were less than 400 cases per year between 2000 and 2004. Newfoundland Labrador reported one to four cases per year during this period. In 2015 around two cases were reported in NL; Cases in NL are related to travel.

### Reservoir

The reservoir is typically humans.

### Transmission

The most common mode of transmission is person-to-person, resulting from fecal contamination and oral ingestion (i.e., the fecal-oral route). Infection may occur by consumption of contaminated ice/water or by ingestion of uncooked or undercooked foods that have been washed in contaminated water. Raw shellfish are a particular common source of infection.

### Incubation Period

The incubation period is from 15 to 50 days (average 28-30 days).

### Communicability

The period of communicability is between one to two weeks before and for at least one week after the onset of illness. Most cases are probably noninfectious after the first week of jaundice. HAV can be detected in stool for longer periods, especially in neonates and younger children.

## Control Measures

### Management of Case

#### *Investigations*

Confirm the diagnosis.

- Obtain a history of illness including date of onset, signs and symptoms, onset date of jaundice. For the purpose of public health follow-up, date of onset is the first day

of prodrome **OR** the 7th day prior to the onset of jaundice, if prodrome is not known. Prodrome refers to the early symptoms suggestive of the onset of disease and, in this case, may include abrupt onset of fever, malaise, anorexia, nausea and vomiting, abdominal discomfort, dark urine and pale stools.

- Determine the dates of communicability (period of infectiousness).
- Determine occupation of the case (e.g., food handler, childcare facility worker, healthcare worker, etc) and identify specific duties at work. When assessing food handlers, determine if their work involves activities such as:
  - Touching unwrapped food to be consumed raw or without further cooking and/or
  - Handling equipment or utensils that touch unwrapped food to be consumed raw or without further cooking.
- If the case is a child, determine attendance at a childcare facility (e.g., daycare) or other childcare arrangements or school attended and grade.
- Determine the possible source of infection taking into account the incubation period, reservoir and mode of transmission. Assessment should include:
  - Determining history of travel.
  - Obtaining a detailed food history especially consumption of contaminated ice/water, uncooked or undercooked food or food washed in contaminated water.
  - Determining history of living in areas with poor sanitation including improper water treatment and sewage disposal, and include recent immigration.
  - Identifying any risk behavior's including lifestyle risks for infection (e.g., MSM, IDU).
  - Determining if the case attends a childcare facility or other type of institutional setting (e.g. living in a correctional facility or residential/institutional setting).
  - Determining if there was any contact with a confirmed case of hepatitis A or contact with an ill person who had symptoms that were clinically compatible with hepatitis A infection.
  - Assessing for similar symptoms in other members of the household (historical and present) and
  - Inquiring about receipt of blood or blood product transfusion, or organ transplantation.
  - Identify contacts who may have had exposure during the period that the case was infectious (period of communicability):

Consider the following when identifying contacts:

- Close personal contacts (e.g., household contacts, sexual contacts including MSM, regular babysitter/childcare provider, contacts in long-term care facilities).
- Persons who have spent 24 hours or more in the household.
- Persons who have eaten food prepared or handled by the case during the infectious period.
- Persons who have had or may have had indirect contact through sharing potentially contaminated items with the case (i.e., items that could be contaminated with feces due to handling by the case).
- Childcare facility contacts including staff.

- Persons who have shared illicit drugs with the case and
- Others who may have had contact with the feces of the case (e.g., in the case of diapered children or others who are incontinent) where good standards of hygiene have not been met.

### ***Treatment***

No specific therapy; treatment is supportive.

### ***Exclusion***

Exclusion (staying away from school or work) of cases involved in sensitive occupations or situations (i.e., those who pose a higher risk of transmission to others) for fourteen (14) days from the onset of their illness or for at least seven (7) days after the onset of jaundice. These would generally include:

- Food handlers whose work involves:
  - Touching unwrapped food to be consumed raw or without further cooking and/or
  - Handling equipment or utensils that touch unwrapped food to be consumed raw or without further cooking. NOTE: Generally, foodhandlers who do not touch food, equipment or utensils in this way are not considered to pose a transmission risk however, circumstances for each case should be assessed on an individual basis.
- Healthcare workers providing direct patient care and persons involved in the care of young children, elderly, highly susceptible or dependent persons.
- Children attending a childcare facility or similar facilities who are diapered or unable to implement good standards of personal hygiene.
- Any individual (child or adult) who is unable to implement good standards of personal hygiene (e.g., mentally or physically challenged).
- Advise all other cases (i.e., those not involved in sensitive occupations or situations) to remain at home while they are acutely ill.

### **Management of Contacts**

- Provide information about Hepatitis A virus and appropriate infection prevention and control measures. Stress the measures to be taken to minimize possible fecal-oral transmission including thorough hand washing, especially after using the washroom, changing diapers, and before eating and preparing/handling foods.
- Assess all contacts, including visitors to the household for potential of exposure during period of communicability for the case.
- Identify contacts that would be considered to have immunity against hepatitis A. A person would be considered immune if they had:
  - History of confirmed hepatitis A disease.
  - Completed an appropriately spaced series of hepatitis A containing vaccine(e.g., Havrix, Vaqta, Twinrix).
  - Received one dose of hepatitis A containing vaccine between one and six months prior to exposure.
  - Received immune globulin (Ig) within the last 3–5 months (dependent on the dose) prior to exposure to the hepatitis A case.

- Exclude symptomatic contacts who are involved in sensitive occupations or situations until they have been assessed to rule out hepatitis A disease.
- Sensitive occupations or situations would include persons who are food handlers whose work involves:
  - Touching unwrapped food to be consumed raw or without further cooking and/or
  - Handling equipment or utensils that touch unwrapped food to be consumed raw or without further cooking. NOTE: Generally, food handlers who do not touch food, equipment or utensils in this way are not considered to pose a transmission risk however, circumstances for each case should be assessed on an individual basis.
- Healthcare workers providing direct patient care and persons involved in the care of young children, elderly, highly susceptible or dependent persons.
- Children attending a childcare facility or similar facilities who are diapered or unable to implement good standards of personal hygiene.
- Any individual (child or adult) who is unable to implement good standards of personal hygiene (e.g., mentally or physically challenged).
- Exclusion of asymptomatic contacts, with no known immunity to hepatitis A, may be considered in special circumstances such as food handlers who have had ongoing exposure to the case during the period of communicability and have not received post-exposure prophylaxis within 14 days of initial contact with the case. It is recommended to test for
  - Anti-HAV IgM and anti-HAV IgG (immunity) and exclude from work pending serology results.
  - If HAV IgM and IgG are both reported negative provide post-exposure prophylaxis (as outlined below) and lift exclusion.
  - If HAV IgM is negative and IgG is positive, lift exclusion.
  - If HAV IgM is positive, treat as a case.
- Advise all asymptomatic contacts to monitor for symptoms and connect with their physician for assessment and notify public health if they develop symptoms of hepatitis A.

## Management of Outbreaks

An outbreak management team should be established to direct and coordinate the investigation as well as address infection prevention and control measures. If the outbreak is limited to one region the region is responsible to manage the outbreak; if more than one region is involved the outbreak will be managed by the province or in consultation with the province.

## Education and Preventive Measures

Strategies to prevent transmission of hepatitis A include:

- Pre-exposure prophylaxis – Provincially funded hepatitis A vaccine is available for specific persons at increased risk of infection or increased risk of severe hepatitis A including:

- People who have chronic liver disease or who are receiving hepatotoxic medication, including persons infected with hepatitis B & C.
- People with hemophilia A or B receiving plasma-derived replacement clotting factor.
- Residents of communities that have high endemic rates of HAV or are at risk of HAV outbreaks.
- Education of the public about good sanitation and personal hygiene, with special emphasis on careful handwashing.
- Child care centers should be vigilant with hand hygiene procedures and diapering practices.
- Food establishments should ensure compliance with the Food Premises Regulations available at <http://assembly.nl.ca/Legislation/sr/regulations/rc961022.htm> .
- Ensure provision of proper water treatment, water distribution systems and sewage disposal.

#### **Advice to travelers**

- Hepatitis A vaccine is recommended and may be purchased by travelers to countries where hepatitis A is endemic.
- Visit a travel clinic prior to travel.
- Provide information available at <http://www.phac-aspc.gc.ca/publicat/cig-gci/p04-hepa-eng.php>

### **Reporting Requirements and Procedures**

- The laboratory (hospital or public health laboratories) report case/s to the attending physician, the Chief Medical Officer of Health and the Medical Officers of Health (MOH)
- The MOH office will notify, as required, local physicians, nurse practitioners, environmental health officers, community health nurses, communicable disease control nurses (CDCNs) and infection control practitioners (ICP), in the particular region as required for follow-up and case investigation.
- EHO will conduct an investigation of the case under the direction of the MOH and provide case details as per the food history.
- CDCN enters the case details into the electronic reporting system and uses the CNPHI tool, if indicated, for alerts or outbreak summaries.

### **Provincial Disease Control**

- Reports the aggregate case data to Public Health Agency of Canada
- Provides an analysis of the case/s with reports in the Quarterly Communicable Disease Report (CDR), also posted on the Public Health website
- Coordinates the response if an outbreak across RHAs (CMOH will likely coordinate an outbreak across RHAs with input from disease control and environmental health.)

## References

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