

Appendix A: Disease-Specific Chapters

Chapter: Hepatitis A

Hepatitis A

- Communicable
 Virulent

**Health Protection and Promotion Act:
Ontario Regulation 558/91 – Specification of Communicable Diseases**

**Health Protection and Promotion Act:
Ontario Regulation 559/91 – Specification of Reportable Diseases**

1) Aetiologic Agent:	Hepatitis A infection is caused by the Hepatitis A virus (HAV), a 27-nanometer picornavirus, positive-strand RNA virus. It has been classified as a member of the family <i>Picornaviridae</i> (1).
2) Case Definition:	
Surveillance Case Definition	See Appendix B
Outbreak Case Definition	<p>The outbreak case definition varies with the outbreak under investigation. Consideration should be given to the following in establishing an outbreak case definition:</p> <ol style="list-style-type: none">1. Clinical, laboratory and/or epidemiological criteria2. A time frame for occurrence3. A geographic location(s) or place(s) where cases live or became ill/exposed4. Special attributes of cases (e.g. age, underlying conditions) <p>Cases should also be classified by levels of probability (i.e. confirmed, probable and/or suspect).</p>
3) Identification:	
Clinical Presentation	<p>Acute clinical illness is characterized by abrupt fever, malaise, anorexia, nausea and abdominal pain followed by jaundice (2). The disease varies in clinical severity from a mild self limited illness lasting 1 to 2 weeks to a severely disabling disease lasting several months and prolonged, relapsing hepatitis for up to a year occurs in 15% of cases (1).</p> <p>Infection usually causes clinical hepatitis in adults and school-aged children but younger children are often asymptomatic. Jaundice develops in < 10% of children 6 years and under (2).</p> <p>Chronic infection is not known to occur. There is usually complete recovery without complications (1).</p>

<p>Diagnosis</p>	<p>See Appendix B</p> <p>Serology test indicating IgM anti-HAV antibodies confirms recent infection. Antibodies are detectable 5-10 days after exposure, before the onset of symptoms and are present for 2-4 months after onset (1).</p> <p>IgG antibodies alone are evidence of some level of immunity either from past infection or previous immunization. “Total hepatitis A virus antibody” (Total anti-HAV, i.e., total IgM and IgG) is not a confirmatory test for acute HAV infection.</p> <p>In rare circumstances, anti-HAV IgM may be detected 1-2 weeks post vaccination with Hepatitis A vaccine.</p>
<p>4) Epidemiology:</p>	
<p>Occurrence</p>	<p>Worldwide, sporadic and epidemic. In endemic areas, adults are usually immune. In Canada, HAV infection occurs primarily in household contacts and in sexual contacts of infected people as well as in day care centres with diapered children and in communities with inadequate sanitation (1).</p> <p>In Ontario, Hepatitis A occurs throughout the year with no clear seasonal pattern. In recent years, contaminated produce such as green onions, have been associated with community-wide outbreaks.</p>
<p>Reservoir</p>	<p>Humans; rarely chimpanzees and other primates (1).</p>
<p>Modes of Transmission</p>	<p>HAV infection is transmitted by the fecal-oral route, through direct contact with infected people or indirectly through ingestion of contaminated water or foods (e.g. seafood harvested from contaminated water) (2).</p> <p>On rare occasions, transmission has been reported after exposure to HAV-contaminated blood or blood products. It also occurs through sexual activities that include direct or indirect oral-anal contact but not through exposure to saliva, semen or urine (2).</p> <p>Transmission from mother to newborn infant (that is, vertical transmission) is rare (3).</p> <p>The virus may persist for days or weeks in the environment (2).</p>
<p>Incubation Period</p>	<p>The incubation period ranges from 15 to 50 days with an average of 28 to 30 days (1).</p>
<p>Period of Communicability</p>	<p>Maximum infectiousness occurs during the latter part of the incubation period with peak levels in the 2 weeks before clinical illness. Infectiousness diminishes rapidly thereafter and ends shortly after the onset of jaundice (2).</p>

	Cases are considered non-infectious 7 days after onset of jaundice although prolonged viral excretion up to 6 months has been documented in infants and children (1).
Susceptibility and Resistance	General susceptibility, however, sexual and household contacts are at increased risk of infection; homologous immunity after infection probably lasts for life (1).

5) Reporting Requirements:

To local Board of Health	Confirmed and suspected cases shall be reported to the medical officer of health by persons required to do so under the <i>Health Protection and Promotion Act</i> , R.S.O. 1990.
To Public Health Division (PHD)	<p>Report only case classifications specified in the case definition to PHD using the integrated Public Health Information System (iPHIS), or any other method specified by the Ministry within one (1) business day of receipt of initial notification as per <i>iPHIS Bulletin</i> Number 17: Timely Entry of Cases (4).</p> <p>The minimum data elements to be reported for each case is specified in the following:</p> <ul style="list-style-type: none"> • <i>Ontario Regulation 569</i> (Reports) under the Health Protection and Promotion Act (HPPA); • The disease-specific User Guides published by the Ministry, and • Bulletins and directives issued by the Ministry.

6) Prevention and Control Measures:

Personal Prevention Measures	<p>Proper personal hygiene and hand washing hygiene are key to prevent transmission. As well, travellers going to developing countries should be aware of how to carefully select food and drink to avoid infection. Refer travellers to travel clinics. More information for travellers can be found at:</p> <p>The Province of British Columbia's "Healthlink BC" (5) and/or the CDC's webpage on Hepatitis A Vaccination (6).</p> <p>In addition immunization with hepatitis A vaccine will prevent infection. The <i>Canadian Immunization Guide</i> (7) recommends hepatitis A vaccine for the following high risk groups:</p> <ul style="list-style-type: none"> • Travelers to countries where hepatitis A is endemic • Residents of communities that have high endemic rates of HAV or are at risk of HAV outbreaks • Members of the Canadian armed forces, emergency relief workers and others likely to be posted abroad at short notice to areas with high rates of HAV infection • People with life-style risks for infection, including people
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	<p>engaging in illicit drug use and MSM</p> <ul style="list-style-type: none"> • People who have chronic liver disease or who are receiving hepatotoxic medications, including persons infected with hepatitis C who may not be at increased risk of infection but are at increased risk of fulminant hepatitis A, should infection occur • People with other conditions for which hepatotoxic medications are likely to be prescribed in the future • People with hemophilia A or B receiving plasma-derived replacement clotting factors; the solvent-detergent method used to prepare all the present plasma-derived factor VIII and some factor IX concentrates does not reliably inactivate HAV, since the virus does not have an envelope • Zoo-keepers, veterinarians and researchers who handle non-human primates • Workers involved in research on HAV or production of hepatitis A vaccine who may be exposed to HAV
<p>Infection Prevention and Control Strategies</p>	<p>Strategies:</p> <ul style="list-style-type: none"> • Routine precautions are recommended if in hospital • Adequate sanitation such as water sources and proper food preparation • Adequate and proper hand hygiene after diaper changes in child care settings • Advise cases with confirmed HAV not to donate blood for six months or as required by Canadian Blood Services
<p>Management of Cases</p>	<p>Investigate the case to determine source of infection. Refer to <i>Ontario Regulation 569</i> for relevant data to collect and include the following in the epidemiological investigation:</p> <ul style="list-style-type: none"> • Determine possible source of infection, including travel history, detailed food history, high risk behaviour such as men who have sex with men (SM) intravenous drug users (IDU) contact with other symptomatic person, attendee or employee of child care centre, resident or staff in an institution or high risk occupation such as food handler • Symptoms and date of symptom onset • Date of onset of jaundice • Determine if received hep A vaccine in previous two weeks prior to blood test • Attendance at any large functions in previous 50 days <p>Determine potential contacts by considering the period from 14 days prior to onset of symptoms to 7 days after onset of jaundice.</p> <p>Provide education as above to cases regarding transmission and personal hygiene.</p> <p>Exclude cases from work for those in high risk occupations or settings such as food handlers, child care centre employees and attendees and health care workers, for 14 days from the date of onset of symptoms.</p>

	<p>If jaundice develops, exclude case until 7 days after onset of jaundice.</p> <p>Treatment is under the direction of the individual's health care provider.</p>
<p>Management of Contacts</p>	<p>Identify the contacts, in particular</p> <ul style="list-style-type: none"> • Those living in same household • Persons who are close non-household contacts such as sexual partners or drug sharing partners • Contacts who are food handlers or • Day care and institutional attendees or employees <p>Determine if any of the contacts are ill. Provide education about proper hygiene, disease transmission and symptoms; if symptoms develop advise to seek medical attention.</p> <p>Exclude symptomatic contacts of confirmed hepatitis A cases from high risk settings (as mentioned above) and screen for laboratory diagnosis; if lab results are negative then terminate exclusion.</p> <p>Post-exposure Prophylaxis Recommendations:</p> <p>The Canadian Immunization Guide recommends:</p> <ul style="list-style-type: none"> • The use of hepatitis A vaccine for post-exposure prophylaxis given as soon as possible to contacts including food handlers, preferably within one week after exposure but can be given up to 14 days after exposure (1, 7) • Hepatitis A Immune globulin is recommended for immuno-compromised contacts and children under 12 months of age who may not respond fully to the vaccine (3) <p>Provincial Infectious Diseases Advisory Committee (PIDAC) recommends that in addition to the usual post-exposure contact management as above, consideration be given to offering serum immune globulin along with hepatitis A vaccine (separate needle, syringe and site) to:</p> <ul style="list-style-type: none"> • High-risk contacts (such as contacts who change diapers of an infected infant; sexual contacts of a case; contacts who ate potentially contaminated food prepared by a case), particularly if the contact is over 50 years of age or has chronic liver disease • Immunocompromised contacts can also be offered hepatitis A vaccine along with the recommended serum immune globulin <p>(Rationale: IG administered at the same time as HAV vaccine does not interfere with the seroconversion rate, but may result in lower antibody levels. These antibody levels are still protective. The use of IG will provide immediate protection if the exposure has been more distant or the viral dose high, situations in which anti-HAV is</p>

	<p>needed quickly and which are difficult to determine. The use of vaccine will provide additional protection, with excellent seroconversion rates. The goal in providing this post-exposure follow up is to provide immediate protection to prevent disease from the specific exposure and not for ongoing protection. Additional doses of vaccine are indicated in the routine HAV vaccine schedule).</p> <p>PIDAC has also made recommendations for children in group settings for consideration:</p> <ul style="list-style-type: none"> • If the index case is a child attending a group setting such as a child care centre or kindergarten class, the following individuals should be offered hepatitis A vaccine for post-exposure prophylaxis: the children in the class, caregivers in the class and the family members and other close contacts of the children in the class • If a child who attends a group setting such as a child care centre or kindergarten class is a close contact of a case of hepatitis A, it is recommended that the following individuals be offered hepatitis A vaccine for post-exposure prophylaxis: caregivers in the class and the children in the class <p>Contacts are generally referred to their health care provider to receive the vaccine as prophylaxis. The vaccine can be provided to the physician by the local health unit. In outbreak scenarios, local board of health may decide to provide the vaccine and offer immunization clinics.</p> <p>If the case is a food handler, consider offering hepatitis A vaccine prophylaxis to other food handlers (best given within 2 weeks after exposure) at the same establishment and to patrons who ate food handled by the infected food handler who were exposed during the period of communicability.</p> <p>Hepatitis A vaccine or IG prophylaxis is not routinely recommended for healthcare workers in contact with a case or for workers in offices or factories, or in schools unless there is evidence of transmission. HAV prophylaxis should be considered in children up to kindergarten age because of improper toileting and hygiene practices.</p>
<p>Management of Outbreaks</p>	<p>Provide public health management of outbreaks or clusters in order to identify the source of illness, stop the outbreak and limit secondary spread. Timely identification of the source of hepatitis A infection, identification of contacts and provision of prophylaxis is crucial in outbreak management.</p> <p>Two or more cases linked to same source in time and place is suggestive of an outbreak.</p> <p>As per this Protocol, outbreak management shall comprise of, but not be limited to the following general steps:</p> <ul style="list-style-type: none"> • Confirm diagnosis and verify the outbreak; • Establish an outbreak team;

	<ul style="list-style-type: none"> • Develop an outbreak case definition; • Implement prevention and control measures; • Implement and tailor communication and notification plans depending on the scope of the outbreak; • Conduct epidemiological analysis on data collected; • Conduct environmental inspections of implicated premise where applicable; • Coordinate and collect appropriate clinical specimens where applicable; • Prepare a written report, and • Declare the outbreak over in collaboration with the outbreak team.
<p>7) References</p>	<p>(1) Heymann D, editor. Control of communicable diseases manual. 18th ed. Washington: American Public Health Association; 2004.</p> <p>(2) Notifiable Diseases On-Line [Internet]. Ottawa: Public Health Agency of Canada; 2003. Hepatitis A; 2003 Dec 11 [cited 2009 Feb 12]. Available from http://dsol-smed.phac-aspc.gc.ca/dsol-smed/ndis/diseases/hepa_e.html.</p> <p>(3) Pickering LK, Baker CJ, Long SS, McMillan JA, editors. Red book: 2006 report of the Committee on Infectious Diseases. 27th ed. Elk Grove Village, IL: American Academy of Pediatrics; 2006. Section 3, Summaries of infectious diseases; p. 326-35.</p> <p>(4) Ministry of Health and Long-Term Care. Timely entry of cases. iPHIS Bulletin. 2007 May 11;17.</p> <p>(5) Province of British Columbia. HealthLink BC [Internet]. Boise, Idaho: Healthwise; c1995-2008. Golonka D, Henley C. Hepatitis A [updated 2007 Jan 19; cited 2009 Feb 10]. Available from http://www.healthlinkbc.ca/kbase/topic/major/hw124783/descrip.htm.</p> <p>(6) Centers for Disease Control and Prevention. Vaccines and Preventable Diseases [Internet]. Atlanta: Centers for Disease Control and Prevention; 2007. Hepatitis A Vaccination [updated 2007 Apr 22; cited 2009 Feb 16]. Available from http://www.cdc.gov/vaccines/vpd-vac/hepa/default.htm</p> <p>(7) National Advisory Committee on Immunization. Canadian immunization guide. 7th ed. Ottawa: Public Health Agency of Canada; 2006. Available from: http://www.phac-aspc.gc.ca/publicat/cig-gci/index-eng.php.</p> <p>(8) Ministry of Health and Long Term Care, Advisory Committee on Communicable Diseases, “Enteric Disease Screening Recommendations and Case Management Guidelines on Foodhandlers and Patient Care Workers”, 1990 or as current (Currently being revised as “Guidelines for the Management of Enteric Diseases in Healthcare Workers, Food Handlers and Day Care Staff and Attendees”).</p>

8) Additional Resources

Ministry of Health and Long-Term Care. Food safety protocol. Toronto: Queen's Printer for Ontario; 2008. Available from http://www.health.gov.on.ca/english/providers/program/pubhealth/oph_standards/ophs/progstds/protocols/food_safety.pdf. (or as current)

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Gregg MB, editor. Field epidemiology. 2nd ed. New York: Oxford University Press; 2002.

Health Protection and Promotion Act, R.S.O. 1990, c. H.7. Available from http://www.e-laws.gov.on.ca/html/statutes/english/elaws_statutes_90h07_e.htm.

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