Hepatitis A

Report acute or active (IgM +) cases immediately

1) THE DISEASE AND ITS EPIDEMIOLOGY

A. Etiologic Agent

Hepatitis A is caused by the hepatitis A virus (HAV), an RNA virus in the picornavirus family.

B. Clinical Description

The onset of hepatitis A is usually abrupt, with fever, malaise, anorexia, nausea and abdominal discomfort; some individuals may experience diarrhea. Jaundice (yellowing of the skin and sclera), dark urine and clay-colored stool may follow a few days later. Infections vary from completely asymptomatic (common in young children) to disabling illness lasting several months. Generally, symptom severity increases with increasing age. The duration of a typical course of hepatitis A is several weeks. Prolonged, relapsing hepatitis for up to 1 year occurs in about 15% of cases. Hepatitis A is rarely fatal and has no chronic carrier state. The elderly and persons with chronic liver disease are at greater risk of fulminant hepatitis A. Hepatitis A is clinically indistinguishable from other types of hepatitis. It must be diagnosed through laboratory testing.

C. Reservoirs

Humans with active infections (symptomatic or not) are the reservoir for this disease. Rarely, non-human primates can serve as a reservoir.

D. Modes of Transmission

The principal mode of transmission is direct or indirect person-to-person spread via the fecal-oral route. Persons become infected by ingesting the virus. This can happen in a variety of ways: ready-to-eat or uncooked food (sandwiches, salads, ice cream, strawberries, etc.) can become contaminated by an infected food worker with poor hygiene; inadequate treatment of fecally-contaminated drinking water; contaminated produce (such as lettuce or strawberries irrigated or processed with contaminated water); shellfish harvested from fecally contaminated waters and then consumed raw or undercooked; and by direct person-to-person contact, including sexual contact (*e.g.*, oral-anal contact). Bloodborne transmission, although rare, can occur during the viremic phase of the disease.

E. Incubation Period

The incubation period for hepatitis A ranges from 15–50 days, with an average of 28–30 days.

F. Period of Communicability or Infectious Period

Individuals are usually most infectious from 1–2 weeks before their symptoms begin to about 1 week after. Viral shedding in the stool is greatest during the 2 weeks before symptom onset.

G. Epidemiology

Hepatitis A has a worldwide distribution and occurs as sporadic cases and outbreaks. In countries where sanitation is poor, infection is common and occurs at an early age. Adults, therefore, are usually immune and outbreaks are uncommon. In developed countries, disease transmission is a problem in daycare settings with

diapered children in attendance, among household and sexual contacts of acute cases, and among travelers to countries where the disease is common.

2) REPORTING CRITERIA AND LABORATORY TESTING SERVICES

A. What to Report to the Massachusetts Department of Public Health

Report acute or active cases:

- Demonstration of immunoglobulin M (IgM) antibody to hepatitis A virus (anti-HAV) in the blood.

Note: See Section 3) C below for information on how to report a case.

B. Laboratory Testing Services Available

The Massachusetts State Laboratory Institute does not provide routine services for hepatitis A screening of clinical specimens or implicated food samples.

3) DISEASE REPORTING AND CASE INVESTIGATION

A. Purpose of Surveillance and Reporting

- To identify whether the case may be a source of infection for other persons (*e.g.*, a diapered child, day care attendee or foodhandler) and if so, to prevent further transmission.
- To identify sources of public health concern (*e.g.*, a salad bar prepared by an infectious foodhandler) and to stop transmission from such a source.

B. Laboratory and Healthcare Provider Reporting Requirements

Refer to the lists of reportable diseases (at the end of this manual's Introduction) for information.

Note: Due to potentially serious public health implications, it is requested that acute or active (IgM +) cases of hepatitis A be **reported immediately** to the local board of health where diagnosed. If this is not possible, call the MDPH Division of Epidemiology and Immunization at (617) 983-6800 or (888) 658-2850 (weekdays), or (617) 983-6200 (nights and weekends).

C. Local Board of Health Reporting and Follow-Up Responsibilities

1. **Reporting Requirements**

MDPH regulations (*105 CMR 300.000*) stipulate that each local board of health (LBOH) must report the occurrence of any acute or active (IgM +) case of hepatitis A. Current requirements are that cases be reported to the MDPH Division of Epidemiology and Immunization, Surveillance Program using an official MDPH *Hepatitis A Case Report* form (see Appendix A). Please refer to the *Local Board of Health Reporting Timeline* (at the end of this manual's introductory section) for information on prioritization and timeliness requirements of reporting and case investigation.

2. **Case Investigation**

   a. **The most important thing a LBOH can do if it learns of an acute or active (IgM +) case of hepatitis A is to immediately call the MDPH, any time of the day or night.** Daytime phone numbers of the Division of Epidemiology and Immunization are (617) 983-6800 and (888) 658-2850. The phone number for nights and weekends is (617) 983-6200.

   b. It is the LBOH responsibility to complete the MDPH *Hepatitis A Case Report* form (in Appendix A) by interviewing the case and others who may be able to provide the pertinent information. Much of the

information required on the form can be obtained from the case's healthcare provider, other involved medical providers or the medical record.

c. The main objective in following up a case of hepatitis A is to determine whether the case is likely to have transmitted his/her infection to others, including situations where a case is identified as a foodhandler, patient care provider or employee at a child care setting. The MDPH *Hepatitis A Worksheet* (in Appendix A) will assist you in recording pertinent information and initiating appropriate control and prevention measures. This worksheet is for LBOH use and does not need to be sent to the MDPH. *The worksheet does not replace the Hepatitis A Case Report form*.

d. Use the following guidelines to assist you in completing the case report form:
   1) **Onset:** Because a case of hepatitis A is most infectious in the two weeks before symptom onset, be sure to accurately record the date of the onset of illness and symptom information. If symptom onset is unclear, use the date when jaundice was first noticed. If no symptoms were noted, the date the blood was drawn should be used as the date of onset for control purposes.
   2) **Case Risk History:** Using the incubation period for hepatitis A (2 to 7 weeks), ask the case about foodhandling, supervised care settings, and other exposures during the incubation period before the illness started.
      a) **Foodhandling history:** These questions (foodhandler, employment sections) are asked to examine the case's risk of transmitting the illness via food, patient care (feeding), etc. Determine whether the case is a foodhandler or patient care provider. If so, appropriate control measures need to be instituted. (See Isolation and Quarantine Requirements in Section 4A below.)
      b) **Supervised care settings:** These questions are asked because hepatitis A is spread through the fecal-oral route. Children with hepatitis A are often asymptomatic; however, they may still be shedding the virus in their stool. Unsuspecting people who are exposed to the fecal material of these cases could be exposed to hepatitis A. Determine whether the case is a child, resident or employee in a supervised care facility. If so, appropriate control measures need to be instituted. (See Isolation and Quarantine Requirements in Section 4A below.)
      c) **Food consumption:** These questions about raw shellfish consumption are asked because on occasions hepatitis A virus infection is associated with ingestion of uncooked or partially cooked shellfish grown in sewage-contaminated waters. If you suspect that the case became infected through the consumption of shellfish or other food(s), use of the MDPH *Foodborne Illness Complaint Worksheet* (located in Appendix A) will facilitate recording additional information. It is requested that LBOHs fax or send this worksheet to the MDPH Division of Food and Drugs (see top of worksheet for fax number and address). This information is entered into a database to help link other complaints from neighboring towns, thus helping to identify foodborne illness outbreaks. *This worksheet does not replace the Hepatitis A Case Report form.*
      d) **Contact with known cases:** These questions are asked because hepatitis A can be spread through household or sexual contact.
      e) **Travel history:** These questions are asked in order to identify where the patient may have become infected. Because of poor sanitation and overcrowding, hepatitis A is endemic in many developing countries. A recent foreign travel history may be indicative of foreign exposure.
   3) A section is also available to list the names of contacts requiring prophylaxis (see Section 4B regarding the identification of close contacts).
   4) If you have made several attempts to obtain case information, but have been unsuccessful (*e.g.*, the case or healthcare provider does not return your calls or respond to a letter, or the case refuses to divulge information or is too ill to be interviewed), please fill out the case report form with as much information as you have gathered. Please note on the form the reason why it could not be filled out completely.

e. After completing the case report form, attach lab report(s) and fax or mail (in an envelope marked "Confidential") to the MDPH Division of Epidemiology and Immunization, Surveillance Program. The

confidential fax number is (617) 983-6813. Call the Surveillance Program at (617) 983-6801 to confirm receipt of your fax. The mailing address is:

MDPH, Division of Epidemiology and Immunization
Surveillance Program, Room 241
305 South Street
Jamaica Plain, MA 02130

f. Institution of disease control measures is an integral part of case investigation. It is the LBOH responsibility to understand, and, if necessary, institute the control guidelines listed below in Section 4), Controlling Further Spread.

4) CONTROLLING FURTHER SPREAD

A. Isolation and Quarantine Requirements (*105 CMR 300.200*)

Minimum Period of Isolation of Patient
Until end of febrile period or one week after onset of symptoms.

Minimum Period of Quarantine of Contacts
No restrictions except for foodhandling facility employees, who shall be excluded from their occupations for 28 days unless they receive a prophylactic dose of immune globulin (IG) within 14 days of exposure. (The exception to this exclusion is if documentation of HAV vaccination can be produced or serologic immunity to HAV demonstrated. Receipt of IG will not interfere with subsequent serologic tests for HAV.)

Note: A foodhandler is any person directly preparing or handling food. This can include a patient care or child care provider. See the Glossary for a more complete definition.

B. Protection of Contacts of a Case

For public health intervention, a case is considered to be infectious for 14 days before the onset of symptoms to 7 days after onset of symptoms. (Fecal shedding of the virus peaks during the week before onset of symptoms.) Control measures are implemented through the administration of IG to the people who had contact (see definition of contact directly below) with the case during their infectious period. IG should be administered as soon as possible after exposure and is 80–90% effective in preventing hepatitis A if administered within 14 days of exposure.

A *contact* is defined as:

- All household members
- Sexual contacts
- Anyone who shared food or eating or drinking utensils with a case
- Anyone consuming ready-to-eat foods prepared by an infectious food worker with diarrhea

C. Managing Special Situations

Daycare
If a confirmed case of hepatitis A occurs in a childcare setting, parents and staff must be notified. Sample notification letters can be found in the MDPH *Health and Safety in Child Care*. Hepatitis A fact sheets should also be sent with the letter. Control of hepatitis A in childcare settings include the following steps:

- When the case is an employee or child enrolled in a center in which all children are older than 2 years and all are toilet-trained, IG is recommended for employees in contact with the case and for children in the same room as the case.
- When an HAV infection is identified in an employee or a child or in the household contacts of two of the enrolled children in a daycare center where children are not yet toilet trained, IG is recommended for all

employees and all enrolled children in the facility. During the 6 weeks after the last case is identified, new employees and children should also receive IG.

- Strictly enforce policies about handwashing (with children and staff) and disinfecting objects and environmental surfaces with appropriate bleach solutions.
- Make sure all parents and staff notify the program if any person in their household is diagnosed with hepatitis A.
- If a household member is confirmed with hepatitis A, the child or staff member living there should get a blood test to see if he or she has the illness as well. If the test is negative, he or she should receive IG. If the test is positive for hepatitis A IgM, exclude as described below.

Exclusion Guidelines

- Exclude children or staff with symptoms.
- Exclude people exposed to hepatitis A in the past 2 weeks, unless they receive a prophylactic dose of IG within 14 days of exposure, or prove immunity through proof of vaccination or serology indicating previous disease.
- People excluded can return 6 weeks after the last case occurs.
- People who are sick with hepatitis A can return to the program no less than one week after the illness started, if their fever and jaundice are gone.

School

Hepatitis A occurring in a school setting usually does not pose a significant risk of transmission and IG is usually not indicated. However, IG may be given to those who have personal contact with a case during the case's infectious period (*e.g.*, sharing food or eating or drinking utensils with a case). If a case of hepatitis A occurs in a kindergarten or preschool class, or a class where hygiene may not be optimal, more stringent control measures may be needed. Please refer to the Daycare section above. (Sample notification letters are available in the MDPH *Comprehensive School Health Manual*.)

- Strictly enforce handwashing and cleanliness policies and ensure that all bathrooms are properly supplied with soap, paper towels, and toilet paper.
- Request that all parents and staff notify the school if any person in their household is diagnosed with hepatitis A.

Community Residential Programs

Actions taken in response to a case of HAV in a community residential program should be handled on a case-by-case basis. Management of contacts will depend on the level of hygiene of the case and the type of facility. Roommates and anyone sharing food or eating or drinking utensils should be considered household contacts and should be given IG within 14 days of exposure. If hepatitis A occurs in a staff member of a residential program, the case should be considered a foodhandler if there was an opportunity to feed, distribute medication, prepare foods or perform dental procedures during the 2 weeks prior to symptom onset. Consult with an epidemiologist at the Division of Epidemiology and Immunization.

Infected Foodhandler

A confirmed case of hepatits A in a foodhandler is a serious event and requires that risk for both co-workers and the public be assessed as quickly as possible. If a foodhandler is a laboratory-confirmed case of hepatitis A, all other foodhandling employees in the facility must receive IG within two weeks of exposure. Unless the foodhandling facility employee contacts can produce documentation of hepatitis A virus (HAV) vaccination or can show serologic immunity to HAV, they must be excluded from work for 28 days if they do not receive IG within 2 weeks of exposure. The same exclusion criteria apply to *any* foodhandling contacts of *any* confirmed case. See Section 4) A, Isolation and Quarantine Requirements, above). In order to determine if the public needs to be notified of possible exposure to HAV, a complete foodhandling history of the case for the 2 weeks before symptom onset needs to be reviewed. This review should include dates worked, job duties, foods prepared and whether gloves or other barrier protection were used by the foodhandler. Please call the Division

of Epidemiology and Immunization at (617) 983-6800 or (888) 658-2850 to help determine the risk to the general public and to arrange shipment of prophylactic IG.

Because common-source transmission to patrons is unlikely, IG administration to patrons is usually not recommended, but can be considered if

- during the time when the foodhandler was likely to be infectious, the foodhandler both directly handled foods served uncooked or foods after cooking, and had diarrhea or poor hygienic practices; *and*
- patrons can be identified and treated within 2 weeks after the exposure.

In settings where repeated exposures to HAV might have occurred (*e.g.*, institutional cafeterias) stronger consideration of more widespread IG use might be warranted.

Note: Please refer to the MDPH *Foodborne Illness Investigation and Control Reference Manual* for more comprehensive management guidelines. (Copies of this manual were distributed to local boards of health in 1997–98. It can also be located on the MDPH website in PDF format at <http://www.magnet.state.ma.us/dph/fpp/refman.htm>.)

Hospitals

Administration of IG to hospital personnel caring for infected patients is not routinely indicated unless an outbreak is occurring. However, if a hospital staff member is diagnosed with hepatitis A and is considered a foodhandler (see the Glossary for a more complete definition) then the foodhandler guidelines must be followed. See Section 4) A, Isolation and Quarantine Requirements, above.

Reported Incidence Is Higher than Usual/Outbreak Suspected

If the number of reported cases in your city/town is higher than usual, or if you suspect an outbreak, investigate clustered cases in an area or institution to determine source of infection and mode of transmission. A common vehicle (such as food or association with a daycare center) should be sought and applicable preventive or control measures should be instituted. Control of person-to-person transmission requires special emphasis on personal cleanliness and sanitary disposal of feces. Consult with the epidemiologist on-call at the Division of Epidemiology and Immunization at (617) 983-6800 or (888) 658-2850**.** The Division can help determine a course of action to prevent further cases and can perform surveillance for cases that may cross several town lines and therefore be difficult to identify at a local level.

Note: Refer to the MDPH *Foodborne Illness Investigation and Control Reference Manual* for comprehensive information on investigating foodborne illness complaints and outbreaks. (It can be located on the MDPH website in PDF format at <http://www.magnet.state.ma.us/dph/fpp/refman.htm> if you do not have a copy.) For recent changes (fall of 2000) to the Massachusetts Food Code, contact the Division of Food and Drugs, Food Protection Program at (617) 983-6712 or through the MDPH website at <http://www.state.ma.us/dph/fpp/>.

D. Preventive Measures

Personal Preventive Measures/Education

HAV infection provides lifelong immunity. In general, however, individuals can avoid exposure to the virus by:

- Washing hands thoroughly with soap and water, especially before handling or eating food, after toilet use, and after changing diapers.
- In daycare or residential programs, disposing of feces in a sanitary manner.
- Avoid sexual practices that may permit fecal-oral transmission. Latex barrier protection should be emphasized as a way to prevent the spread of HAV to a case's sexual partners as well as being a way to prevent exposure to and transmission of other pathogens.
- Consider vaccination of those at high-risk of contracting hepatitis A. Massachusetts residents who should be vaccinated include the following:

- Persons (≥ 2 years of age) traveling to or working in countries with high or intermediate rates of hepatitis A, such as Central or South America, the Caribbean, Mexico, Asia (except Japan), Africa, and southern or eastern Europe. The vaccine series should be started at least one month before traveling.
- Men who have sex with men.
- Illegal drug users, whether injecting or not.
- Persons with chronic liver disease (not just infection), including those who are awaiting or have received liver transplants.
- Persons who receive clotting factor concentrates.
- Persons who have occupational risk for infection; specifically, those who work with HAV-infected primates or with HAV in a research laboratory setting. Sewage workers do not need to be vaccinated.

Note: According to 1999 ACIP recommendations, the current incidence of hepatitis A in Massachusetts communities does not warrant routine childhood vaccination. If a major outbreak occurs in a community or larger area, MDPH may determine, based on local epidemiologic data and ACIP guidelines, that mass vaccination of certain groups is warranted.

International Travel

Travelers to areas where hepatitis A is endemic should receive IG before travel under the following circumstances:

- if they are allergic to a component of the vaccine or elect not to receive vaccine
- if they are less than 2 years old (vaccine is not licensed for this age group)
- if they are traveling to an endemic area in less than 4 weeks, they may receive vaccine and IG at the same time (in different anatomical sites).

In addition, travelers should pay attention to what they eat and drink. This is extremely important, because the vaccine is not 100% effective and immunity from IG wears off with time. Taking precautions such as those listed below will help prevent other illnesses as well, including travelers' diarrhea, cholera, dysentery, and typhoid fever.

Recommendations to travelers include:

- "Boil it, cook it, peel it, or forget it."
- Drink only bottled or boiled water, keeping in mind that bottled carbonated water is safer than uncarbonated water.
- Ask for drinks without ice unless the ice is made from bottled or boiled water.
- Avoid popsicles and flavored ices that may have been made with contaminated water.
- Eat foods that have been thoroughly cooked and are still hot and steaming.
- Avoid raw vegetables and fruits that cannot be peeled. Vegetables like lettuce are easily contaminated and are very hard to wash well.
- Peel their own raw fruits or vegetables and do not eat the peelings.
- Avoid foods and beverages from street vendors.

A *Hepatitis A Public Health Fact Sheet* can be obtained from the Division of Epidemiology and Immunization or through the MDPH website at <http://www.state.ma.us/dph/>. Click on the "Publications" link and scroll down to the Fact Sheets section. It is also available in Spanish.

For more information regarding international travel and hepatitis A, contact the CDC's Traveler's Health Office at (877) 394-8747 or through the internet at <http://www.cdc.gov/travel>.

ADDITIONAL INFORMATION

Following is the formal Centers for Disease Control and Prevention (CDC) surveillance case definition for hepatitis A. It is provided for your information only and should not affect the investigation or reporting of a

case that fulfills the criteria in Section 2) A of this chapter. (CDC case definitions are used by the state health department and CDC to maintain uniform standards for national reporting.) For reporting to the MDPH always use the criteria outlined in Section 2) A.

Clinical case definition
An acute illness with a) discrete onset of symptoms and b) jaundice or elevated serum aminotransferase.

Laboratory criteria for diagnosis
Immunoglobulin M (IgM) antibody to hepatitis A virus (anti-HAV) positive.

Case classification
Confirmed: a case that meets the clinical case definition and is laboratory confirmed, or a case that meets the clinical case definition and occurs in a person who has an epidemiologic link with a person who has laboratory-confirmed hepatitis A (*i.e.*, household or sexual contact with an infected person during the 15–50 days before the onset of symptoms).

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