

# Hepatitis A

## Surveillance Protocol



### **Public Health Significance**

Hepatitis A is a vaccine-preventable, communicable disease of the liver caused by the hepatitis A virus (HAV). HAV is transmitted person-to-person through the fecal-oral route or through consumption of contaminated food or water. Hepatitis A is a self-limited disease that does not result in chronic infection. Antibodies produced in response to HAV infection last for life and protect against reinfection. Most adults with hepatitis A have symptoms, including fatigue, jaundice, fever, loss of appetite, nausea, stomach discomfort, and sometimes diarrhea. Most children younger than age six are asymptomatic; young children typically do not have jaundice when symptoms are present. In non-outbreak years, West Virginia averages less than ten cases of hepatitis A per year. Due to the highly contagious nature of HAV, cases are required to be reported to the local health department (LHD) within 24 hours of test result.

Contamination of food or water is more likely to occur in developing countries where hepatitis A is common due to poor sanitary conditions or poor personal hygiene. In these countries, most people are infected during the first decade of life. In developed countries, sporadic infections most commonly occur among travelers with recent travel to countries where the disease is endemic, in daycare centers with diapered children, and among injection drug users and men who have sex with men (MSM). Disease transmission is most frequent among household and sexual contacts of acute cases.

In the United States, chlorination of water kills HAV that enters the water supply. Foodborne outbreaks of hepatitis A have occurred; in 2016, a large, multistate outbreak involving nine states, including West Virginia, was linked to frozen strawberries. However, HAV is now more commonly spread person-to-person. Since 2016, there have been widespread person-to-person outbreaks across the United States among people who use illicit drugs and people experiencing homelessness; 29,804 cases including 18,143 hospitalizations (61%) and 302 deaths were reported from 30 states. West Virginia declared a hepatitis A outbreak in March 2018; as of December 2019, 2,619 cases including 1,312 (50%) hospitalizations and 23 deaths were reported. Nearly 70% of these cases reported illicit drug use and almost 10% reported homelessness.

Vaccination is one of the most effective ways to prevent hepatitis A. Vaccination is recommended routinely for children at age 12–23 months, for persons who are at increased risk for HAV infection, and for any person wishing to obtain immunity. Persons at increased risk for HAV infection include international travelers to areas with high or intermediate hepatitis A endemicity, MSM, users of injection and non-injection drugs, persons experiencing homelessness, persons with chronic liver disease, persons with clotting factor disorders, persons who work with HAV-infected primates or with HAV in a research laboratory setting, and persons who anticipate close contact with an international adoptee from a country of high or intermediate endemicity.

### **Healthcare Provider Responsibilities**

1. Report all cases to your LHD within the timeframe indicated:
  - a. Hepatitis A, positive IgM within 24 hours to the LHD by phone.
  - b. Report suspect or confirmed outbreaks/clusters immediately to the LHD.

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2. Because HAV is easily spread, cases should be reported as soon as possible after diagnosis. Include the following information:
  - a. Patient's name, date of birth, address and phone number.
  - b. Demographic information including race, sex, age, and ethnicity.
  - c. Clinical symptoms.
  - d. Laboratory results: hepatitis A serology (including IgM), alanine aminotransferase levels (ALT) and bilirubin levels. Results should also include normal values and range interpretation.
3. Provide education about the disease, its transmission and appropriate control measures (especially if the patient is a food service worker or is associated with childcare settings).
4. Exclude children and cases that are food handlers from work, if within seven days of symptom onset.
5. Provide post-exposure prophylaxis (PEP) to (or refer to LHD) household and sexual contacts who are still within two weeks of exposure.

### **Laboratory Responsibilities**

1. Report all positive anti-HAV IgM tests by phone to the LHD in the patient's county of residence within 24 hours of result. Send or fax a copy of the laboratory result to the LHD if not already reported by electronic laboratory reporting (ELR).
2. Please include the following information:
  - a. Patient's name, date of birth, address and phone number.
  - b. Demographic information including race, sex, age, and ethnicity.
  - c. Physician name, address and phone number.
  - d. Laboratory results: hepatitis A serology (including IgM), alanine aminotransferase (ALT) and bilirubin levels. Results should also include normal values and range interpretation.

### **Local Health Responsibilities**

1. Confirm laboratory results and clinical symptoms meet the case definition.
  - a. Look carefully at the laboratory results. Only persons with a positive IgM anti-HAV antibody are acutely infected with hepatitis A. Asymptomatic persons with a positive "total anti-HAV antibody" may have either recent or remote hepatitis A infection and do not need to be investigated or reported.
2. Contact the provider who ordered the test to obtain the reason for testing. If the person is not experiencing symptoms of acute hepatitis, there is no need for further investigation. Enter the information into West Virginia Electronic Disease Surveillance System (WVEDSS) and submit as "not a case."
3. If the person is experiencing symptoms of acute hepatitis, complete the Hepatitis A Case Report form and enter the following information in WVEDSS.
  - a. Date of onset of symptoms (date of jaundice is considered the most reliable sign) and type of symptoms.
  - b. Liver function tests.
  - c. IgM antibody to HAV (anti-HAV IgM).
  - d. High risk occupation (food handler).
  - e. Travel history.

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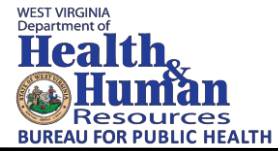
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- f. Important risk factors: illicit drug use, homelessness, recent incarceration and recent contact with hepatitis A positive individual.
  - g. Attendance or employment at daycare/childcare facility.
  - h. Sexual and other close contacts.
4. Calculate the infectious period. Persons with acute hepatitis A are infectious from two weeks before onset of symptoms to one week after onset. If jaundice is present, use the onset date of jaundice to calculate the infectious period. A hypothetical example follows:

**Infectious Period for Hypothetical Case of Hepatitis A**  
(Shaded area indicates the infectious period)

Sun	Mon	Tues	Wed	Thurs	Fri	Sat
5	6	7	8	9 (Two weeks before onset)	10	11
12	13	14	15	16	17	18
19	20	21	21	23 ONSET	24	25
26	27	28	29	30 (One week after onset)	31	1

- 5. Close contacts of the case during the infectious period should be investigated.
  - a. Notify contacts of the case of a possible hepatitis A exposure during the infectious period.
  - b. Provide education about the disease, its transmission and appropriate control measures.
  - c. Administer PEP, if appropriate. See PEP recommendations below.
  - d. Symptomatic persons should be tested for anti-HAV IgM.
  - e. Persons found to be positive for anti-HAV IgM should be investigated and reported as cases according to the steps above.
- 6. Ensure appropriate control measures are implemented:
  - a. Use information obtained during the case investigation to identify a potential source.
  - b. Proper hand-hygiene practice – washing with soap and warm water, especially before preparing, handling or eating any food, after going to the bathroom, after changing a diaper, and after caring for someone with diarrhea. Alcohol-based hand sanitizers are not as effective against HAV as handwashing. Most brands do not kill HAV.
  - c. Hand-hygiene adherence during the infectious period should be strictly enforced for patients infected with HAV.

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### PEP Recommendations

PEP with hepatitis A vaccine or immune globulin (IG) effectively prevents infection with HAV when administered within 14 days of exposure. For PEP and in outbreak situations, a single dose of HAV vaccine is enough for short-term immunity. However, for long-term immunity, the hepatitis A vaccine series should be completed with a second dose at least six months after the first dose. A second dose should not be administered any sooner than six months after the first dose, regardless of HAV exposure risk.

1. For persons recently exposed to HAV (within 14 days) and who have **NOT** previously completed the two-dose hepatitis A vaccination series:
  - **Infants aged <12 months and persons for whom vaccine is contraindicated** (those having had a life-threatening allergic reaction after a dose of hepatitis A vaccine, or who have a severe allergy to any component of this vaccine) should receive GamaSTAN S/D human IG (0.1 mL/kg) instead of hepatitis A vaccine (MMR and varicella vaccines should not be administered sooner than three months after IG administration because antibody-containing products such as IG can inhibit the immune response to measles and rubella vaccines).
  - **Immunocompetent persons aged ≥12 months** should receive a single dose of hepatitis A vaccine. In addition to hepatitis A vaccine, GamaSTAN S/D human IG (0.1 mL/kg) may be administered to persons aged >40 years depending on the providers' risk assessment of patient comorbidities and other health factors.
  - **Persons aged ≥12 months who are immunocompromised or have chronic liver disease** should receive both hepatitis A vaccine, GamaSTAN S/D human (0.1 mL/kg) and hepatitis A vaccine simultaneously in a different anatomic site (e.g., separate limbs).
2. Special PEP recommendations for high-risk settings for transmission of hepatitis A:
  - a. Daycare centers: PEP should be administered to all staff and attendees of daycare centers or homes if:
    1. One or more cases of hepatitis A are recognized in children or employees, **or**
    2. Cases are recognized in two or more households of center attendees.
  - b. Food handlers: PEP should be administered to other food handlers at the same location.
    - i. PEP administration to patrons is unlikely needed but may be considered if:
      1. The food handler directly handled ready to eat foods or foods after cooking during the infectious period **and**
      2. Had diarrhea or poor hygienic practices **and**
      3. Patrons can be identified and treated within two weeks after the exposure.
    - ii. Contact Division of Disease Epidemiology (DIDE) immediately for consultation.
    - iii. Complete the HAV Supplemental Worksheet for Food Handlers to accurately document the above criteria, especially if considering administering PEP to patrons. The worksheet will be provided by DIDE.
  - c. In settings where repeated exposures to HAV may have occurred (e.g., institutional cafeterias),

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stronger consideration of PEP use may be warranted.

- d. PEP should not be administered to exposed persons after additional cases have begun to occur in a common-source outbreak, since the two-week effective period for PEP will have passed.

### **State Health Responsibilities**

1. Prompt and complete reporting of HAV cases to the Centers for Disease Control and Prevention (CDC) through WVEDSS.
2. Report cases of HAV to the CDC within 30 days of notification.
3. Provide technical expertise and consultation regarding surveillance, investigation, control measures and prevention of HAV.
4. Notify the CDC of suspected outbreaks identified in West Virginia and assist local health jurisdictions in obtaining the knowledge and resources necessary for investigations of a HAV outbreak.
5. Summarize surveillance data for HAV annually.
6. Provide training and consultation to local public health staff.
7. Assist LHDs in obtaining HAV vaccine and IG for contacts of cases and in outbreaks.
8. Offer laboratory testing of HAV through the Office of Laboratory Services (OLS) for contacts.
9. Assist with difficult investigations including:
  - a. Interface with providers on behalf of LHDs as necessary.
  - b. Investigation of possible exposures in unusual settings.

### **Disease Control Objectives**

1. Reduce the incidence of HAV by vaccination of the following at-risk populations:
  - a. International travelers to countries that have high or intermediate endemicity of hepatitis A.
  - b. MSM.
  - c. Users of injection and non-injection drugs.
  - d. Household members and other close personal contacts of adopted children newly arriving from countries with high or intermediate hepatitis A endemicity.
  - e. Persons with chronic liver disease.
  - f. Persons with clotting-factor disorders.
  - g. Persons at risk for occupational exposure.
  - h. Persons experiencing homelessness.
2. Prevent further person-to-person transmission by giving PEP to:
  - a. Household or sexual contact of a case.
  - b. Contacts of the case in a high-risk setting such as in daycare or a commercial food establishment.
3. Prevent unnecessary transmission through the early recognition and investigation of outbreaks so that control measures can be instituted in a timely fashion.

### **Disease Prevention Objectives**

1. Reduce the incidence of HAV through education of:
  - a. Public: appropriate handwashing.
  - b. Food service workers: appropriate handwashing and not working while sick.

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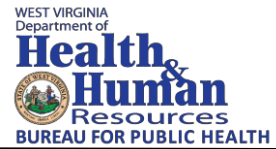
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- c. Daycare operators: appropriate handwashing and exclusion of ill children and staff.
2. Reduce the incidence of HAV through appropriate use of the HAV vaccine for:
  - a. All children at age one year.
  - b. Travelers to countries that have high rates of HAV.
  - c. Household members and other close personal contacts of adopted children newly arriving from countries with high or intermediate hepatitis A endemicity.
  - d. MSM.
  - e. People who use injection and non-injection illegal drugs.
  - f. People with chronic (lifelong) liver diseases.
  - g. People who are treated with clotting-factor concentrates.
  - h. People who work with HAV infected animals or in a research laboratory.
  - i. People who are experiencing homelessness.

### **Disease Surveillance Objectives**

1. Determine the incidence of HAV in West Virginia.
2. Identify demographic characteristics of persons with HAV.
3. Detect any increase in the incidence of HAV or any change in the usual pattern of disease transmission.

### **Occupational Health**

The CDC does not recommend vaccination for any occupational group, other than individuals who work directly with primates. Standard precautions should be followed while working with individuals with possible HAV infection.

### **Clinical Description**

HAV is a viral illness that results in jaundice, fever, loss of appetite, nausea, malaise, and sometimes diarrhea. Affected individuals may have abdominal pain, an enlarged liver, dark urine, and light stool. Most infected infants and preschool children have no signs or symptoms of the disease; however, they are just as infectious as adults. Among older children and adults, infection is usually symptomatic and typically lasts several weeks, with jaundice occurring in 70% or more of these cases; signs and symptoms typically last less than two months. In contrast to hepatitis B and C, fulminant disease or death occurs only rarely, and there is no carrier state. Severe disease is more likely to occur in the elderly or in persons with underlying liver disease (including hepatitis C). Chronic disease does not occur.

### **Etiologic Agent**

Hepatitis A is member of the Picornaviridae family of viruses, which includes Enteroviruses and Rhinoviruses. HAV is a ribonucleic acid (RNA) virus that is very hardy and can survive outside the body for several months depending on environmental conditions.

### **Reservoir**

Humans, rarely chimpanzees, and certain other non-human primates are the reservoir for the virus.

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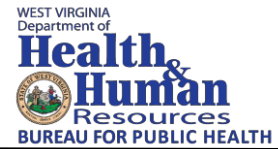
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### **Mode of Transmission**

Person-to-person transmission through the fecal-oral route (i.e., ingestion of something that has been contaminated with the feces of an infected person) is the primary means of HAV transmission in the United States.

### **Incubation Period**

The average incubation period for HAV is 28 days (range: 15–50 days).

### **Period of Communicability**

The infectious period of the disease is two weeks before symptoms onset to one week after onset. In patients with jaundice, use the date of jaundice onset as the symptom onset date.

### **Outbreak Recognition**

Two or more cases of hepatitis A that are epidemiologically linked are considered an outbreak. Outbreaks can occur by either point or propagated transmission.

Propagated outbreaks are those that involve person-to-person transmission and result in two or more generations of cases. Hepatitis A outbreaks of this nature are generally recognized when more than one case occurs in an institution (e.g., prison or daycare), or links are recognized between cases in the living community (e.g., homeless community). Cases in these outbreaks usually have widely spaced onset dates (three to six weeks) with little clustering in time. Propagated outbreaks of HAV have also occurred from foodborne transmission through ingestion of contaminated food.

Point source outbreaks are those that result from one common exposure or infected person. Hepatitis A outbreaks of this nature are generally recognized after a larger than expected number of cases of hepatitis A are reported within a limited time period. Since the incubation period of HAV is long, 15 to 50 days, and the infectious period can be as long as three weeks, the onset dates for cases with a common source are usually spread over several weeks. Examples include community-based outbreaks due to a single infected food handler or due to contaminated food items such as produce and shellfish. Consult the Foodborne Disease Investigation Manual ([oeps.wv.gov/outbreaks/documents/lhd/fnw\\_ob\\_manual.pdf](https://www.oeps.wv.gov/outbreaks/documents/lhd/fnw_ob_manual.pdf)) for the protocol to investigate foodborne disease outbreaks.

### **Case Definition (Hepatitis A, Acute 2019 Case Definition)**

The most current CDC Case Definition should always be used for case classification and may not be reflected in the protocol. This information is located at [wwwn.cdc.gov/nndss/conditions/hepatitis-a-acute/](https://wwwn.cdc.gov/nndss/conditions/hepatitis-a-acute/)

### **Clinical Description**

An acute illness with a discrete onset of any sign or symptom consistent with acute viral hepatitis (e.g., fever, headache, malaise, anorexia, nausea, vomiting, diarrhea, abdominal pain, or dark urine)

**AND**

a) jaundice or elevated total bilirubin levels  $\geq 3.0$  mg/dL, **OR**

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- b) elevated serum alanine aminotransferase (ALT) levels >200 IU/L,  
**AND**
- c) the absence of a more likely diagnosis.

### Laboratory Criteria for Diagnosis

Confirmatory laboratory evidence:

- Immunoglobulin M (IgM) antibody to hepatitis A virus (anti-HAV) positive,  
**OR**
- Nucleic acid amplification test (NAAT; such as Polymerase Chain Reaction [PCR] or genotyping) for hepatitis A virus RNA positive.

### Epidemiologic Linkage

Contact (e.g., household or sexual) with a laboratory-confirmed hepatitis A case 15-50 days prior to onset of symptoms.

### Criteria to Distinguish a New Case from an Existing Case

Hepatitis A is usually self-limiting and does not result in chronic infection. However, up to 10% of persons with hepatitis A may experience a relapse during the six months after acute illnesses. Cases of relapsing hepatitis A should not be enumerated as new cases. In addition, a case should not be counted as a hepatitis A case if there is an alternate, more likely diagnosis.

### Case Classification

#### Confirmed

- A case that meets the clinical criteria and is IgM anti-HAV positive,<sup>§</sup> **OR**
- A case that has hepatitis A virus RNA detected by NAAT (such as PCR or genotyping), **OR**
- A case that meets the clinical criteria and occurs in a person who had contact (e.g., household or sexual) with a laboratory-confirmed hepatitis A case 15–50 days prior to onset of symptoms.

<sup>§</sup>And not otherwise ruled out by IgM anti-HAV or NAAT for HAV testing performed in a public health laboratory.

### Preventive Interventions

The major methods of disease prevention are improved sanitation and personal hygiene and immunization.

1. Always wash your hands after using the bathroom.
2. Always wash your hands after cleaning the toilet.
3. Always wash your hands after changing diapers.
4. Always wash your hands after handling soiled towels or linens.
5. Always wash your hands before fixing food or eating.
6. If exposed to HAV, ask your doctor about PEP.
7. Vaccination of recommended high-risk groups.

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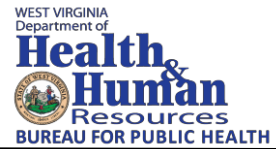
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### Treatment

Supportive care as needed for dehydration and electrolyte abnormalities.

### Exclusion

1. Food handlers should be excluded according to the 2013 FDA Food Code ([www.fda.gov/FoodCode](http://www.fda.gov/FoodCode)). For questions or assistance in determining the exclusion status of a food handler, contact the Office of Environmental Health Services at (304) 558-2198.
2. Children and employees in daycare and school settings should be excluded for seven days after the onset of any symptoms.

### Surveillance Indicators

1. Proportion of investigations with complete demographic information.
2. Proportion of investigations with complete severity information (hospitalization and death).
3. Proportion of investigations with complete information in high-risk or sensitive occupations (e.g., food handler, healthcare worker).
4. Proportion of investigations with complete exposures information (from two to six weeks before onset of symptoms). These include:
  - a. Travel history.
  - b. Contact of confirmed hepatitis A case.
  - c. History of drug use (IV and/or non-IV).
  - d. Contact with a child in daycare.
  - e. Homeless.
5. Proportion of investigations with date of public health action (disease education) recorded.

### References

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