Hepatitis A Public Health Investigation Guidance

February 2021

Hepatitis A (HAV) is an acute, self-limiting viral illness associated with abrupt onset of fever, malaise, jaundice, anorexia, nausea, abdominal discomfort, and dark urine.

Development of clinical symptoms is highly age dependent; among older children and adults, infection is typically symptomatic with 70% presenting with jaundice. In children less than six years of age, 70% of infections are asymptomatic. Older persons and persons with chronic liver disease are more likely to have severe disease and HAV prevention in these groups is particularly important.

Definition of immunity

Persons are considered immune if they have:

- received 2 doses of HAV vaccine; or
- a history of IgM or total anti-HAV positivity during or up to four months after consistent clinical illness; or
- are IgG anti-HAV positive.

Post-vaccination testing is not indicated because of the vaccine's high efficacy. Most adults will be protected within 2-4 weeks after one dose of vaccine.

HAV vaccine was licensed in 1995 and has been routinely recommended for children in California and other high incidence states since 1999 and children in all states since 2005. Most California children/adolescents are immune.

Modes of transmission

HAV is primarily transmitted via the ingestion of fecal material via contaminated foods or liquids, sexual contact, or putting contaminated hands or objects in mouth. HAV is present in blood and feces 10-12 days after infection; it is rarely transmitted by blood (e.g., via transfusion) or saliva.

Incubation period

A range of 15-50 days with a mean of 28 days.

Period of communicability

Most immunocompetent adults shed virus in the stool and are infectious from 2 weeks before through 1 week after the onset of jaundice or elevation of liver enzymes, when concentration of virus in the stool is highest. In absence of jaundice, persons should be considered infectious for 2 weeks before through 1 week after the onset of hepatitis symptoms. Children may excrete virus longer than adults.

Clinical description

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**

- jaundice **or** elevated total bilirubin levels ≥3.0 mg/dL; **OR**
- elevated serum alanine aminotransferase (ALT) levels >200 IU/L; **AND**
- the absence of a more likely diagnosis.

Laboratory criteria for diagnosis

- Immunoglobulin M (IgM) antibody to HAV (anti-HAV) positive; **OR**
- Nucleic acid amplification test (NAAT; such as polymerase chain reaction (PCR) or genotyping for hepatitis A virus RNA.

Confirmed case definition

- A case that meets the clinical case criteria and is IgM positive*; **OR**
- has hepatitis A virus RNA detected by NAAT (such as PCR or genotyping); **OR**
- 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 (epidemiologic linkage).

Criteria to distinguish a new case from an existing case

Hepatitis A infection 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 6 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.

Laboratory testing

IgM anti-HAV is present at the onset of illness. It usually disappears <4 months but may persist ≥6 months. IgM anti-HAV is also occasionally detectable in adults 2 weeks after receiving HAV vaccine. IgG anti-HAV is detectable shortly after the appearance of IgM and is lifelong (Figure 1).

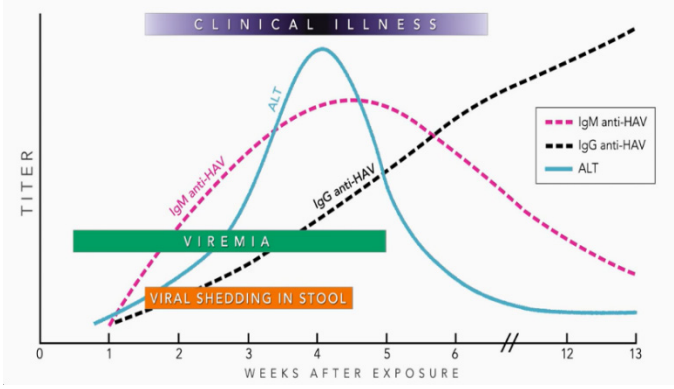


Figure 1: Immunologic and clinical events associated with hepatitis A virus infection and recovery. Source: CDC

False positive IgM anti-HAV

A positive IgM anti-HAV test result in a person without typical symptoms of HAV may indicate:

- a false-positive test result (this is common); or
- asymptomatic acute HAV infection; or
- previous HAV infection with persistent IgM.

Because of the risk of false positive results, IgM anti-HAV testing should be limited to persons with evidence of clinical hepatitis and should not be used as a screening tool or as part of testing panels in the workup of nonacute liver function abnormalities.

If a positive IgM anti-HAV report is received on a patient without HAV symptoms or recent contact with an HAV infected person, repeat IgM anti-HAV testing and a review ALT or AST levels (often >500 units/L in acute hepatitis), **or** HAV PCR testing at the CDPH Viral and Rickettsial Disease Laboratory (VRDL) should be considered before recommendations are made for postexposure prophylaxis or other public health responses.

Hepatitis A PCR testing and genotyping

The CDPH VRDL is able to perform HAV PCR testing and genotyping. Please submit specimens to VRDL for patients with symptoms consistent with HAV infection and an IgM anti-HAV positive test result who are injection/non-injection drug users, experiencing homelessness, MSM, or have no known HAV risk factor for PCR and genotyping. Specimens can be submitted using the VRDL General Purpose Specimen Submittal Form available at: http://tinyurl.com/yaxmf3bz. Please see CDPH HAV testing guidance at: http://tinyurl.com/y52hteex.

Hepatitis A postexposure prophylaxis (PEP)

CDPH guidance on HAV PEP is available at: http://tinyurl.com/y5stg4b4

Pre-exposure prophylaxis (general)

The 2-dose HAV vaccine series is routinely recommended for children 12 months through 18 years of age and for persons at increased risk of HAV infection (travelers to endemic areas, MSM, injection/non-injection drug users, persons with chronic liver disease or clotting factor disorders, and persons experiencing homelessness). There is no routine recommendation for HAV vaccination of food handlers or healthcare workers.

Pre-exposure prophylaxis (international travel)

Susceptible persons traveling to countries with high or intermediate HAV endemicity should be vaccinated or receive intramuscular immune globulin (IG) (0.1 mL/kg) before travel.

A first dose of single-antigen HAV vaccine given up to the date of departure should protect most healthy persons. In addition to HAV vaccine, IG may be considered before travel for persons with increased risk for complications in the event of HAV infection, such as immunocompromised people and people with liver disease. IG may also be considered in addition to vaccine for people >40 years of age based on the provider's risk assessment.

Infants aged 6-11 months should receive vaccine before travel to risk countries, but the dose should not be counted towards the routine 2-dose series. Infants <6 months of age, and those for whom vaccine is contraindicated, should receive IG. IG dosing varies by duration of travel.

See CDC hepatitis A prophylaxis guidance for specifics: https://www.cdc.gov/mmwr/volumes/67/wr/mm6743a5.htm

A list of regions where hepatitis A is endemic is available at: http://tinyurl.com/y3tclgfy.

Combined HAV/HBV vaccine "accelerated" schedule

The first **2 doses** of the combined HAV/HBV vaccine (Twinrix®) accelerated schedule provide equivalent protection to the only the **first dose** in the standard, single-antigen adult HAV vaccine 2-dose series and the first 2 doses in the standard adult HBV vaccine series. Therefore, this schedule offers no particular benefit and CDC recommends the regular schedule when possible.

Close contact definition

Household/sexual contacts, drug sharers, childcare center staff/attendees, and others with ongoing close contact.

Risk for HAV transmission in different settings

HAV transmission risk varies by setting. Secondary attack rates are 15-30% in households and higher rates of transmission are associated with infected children. In contrast, attack rates are low among restaurant patrons who have been exposed to infected food handlers.

Food service settings

HAV-infected food handlers should be excluded for 1 week after jaundice onset (or if no jaundice, during peak aminotransferase activity or symptom onset). Other potentially exposed food handlers in the same setting should be given PEP.

Because transmission to patrons is unlikely, PEP is not routinely indicated for patrons, but may be considered if, while infectious, the food handler:

- directly handled (without gloves) uncooked or cooked foods; **and**
- had diarrhea or poor hygienic practices† at work; **and**
- patrons can be identified and treated no later than 2 weeks after exposure (see algorithm, page 4).

Note: If repeated exposures might have occurred (e.g., in an institutional cafeteria), stronger consideration of PEP for patrons may be warranted.

In a common source outbreak, PEP is not indicated for exposed persons after cases have begun to occur because the 2 week period during which PEP is known to be effective will have been exceeded. If a common source is suspected in 2 or more cases, the CDC Hepatitis Reference Laboratory can perform molecular typing. Contact CDPH at 510-620-3737 for more information.

Healthcare settings

PEP is not routinely indicated for staff who have provided care for an HAV-infected patient. When providing care for HAV-infected patients, contact precautions are recommended (in addition to standard precautions) for diapered and incontinent patients for at least 1 week after symptom onset.

PEP is indicated for persons who have had close contact with HAV cases if an epidemiological investigation indicates that HAV transmission has occurred among patients or between patients and staff.

Childcare settings

Exclude HAV-infected staff and attendees for 1 week after onset of jaundice (or if no jaundice, onset of symptoms. If asymptomatic, use time of peak ALT/AST).

PEP is indicated for previously unvaccinated staff/attendees if a case of HAV is diagnosed in staff/attendees or if HAV cases are diagnosed in 2 or more households of attendees.

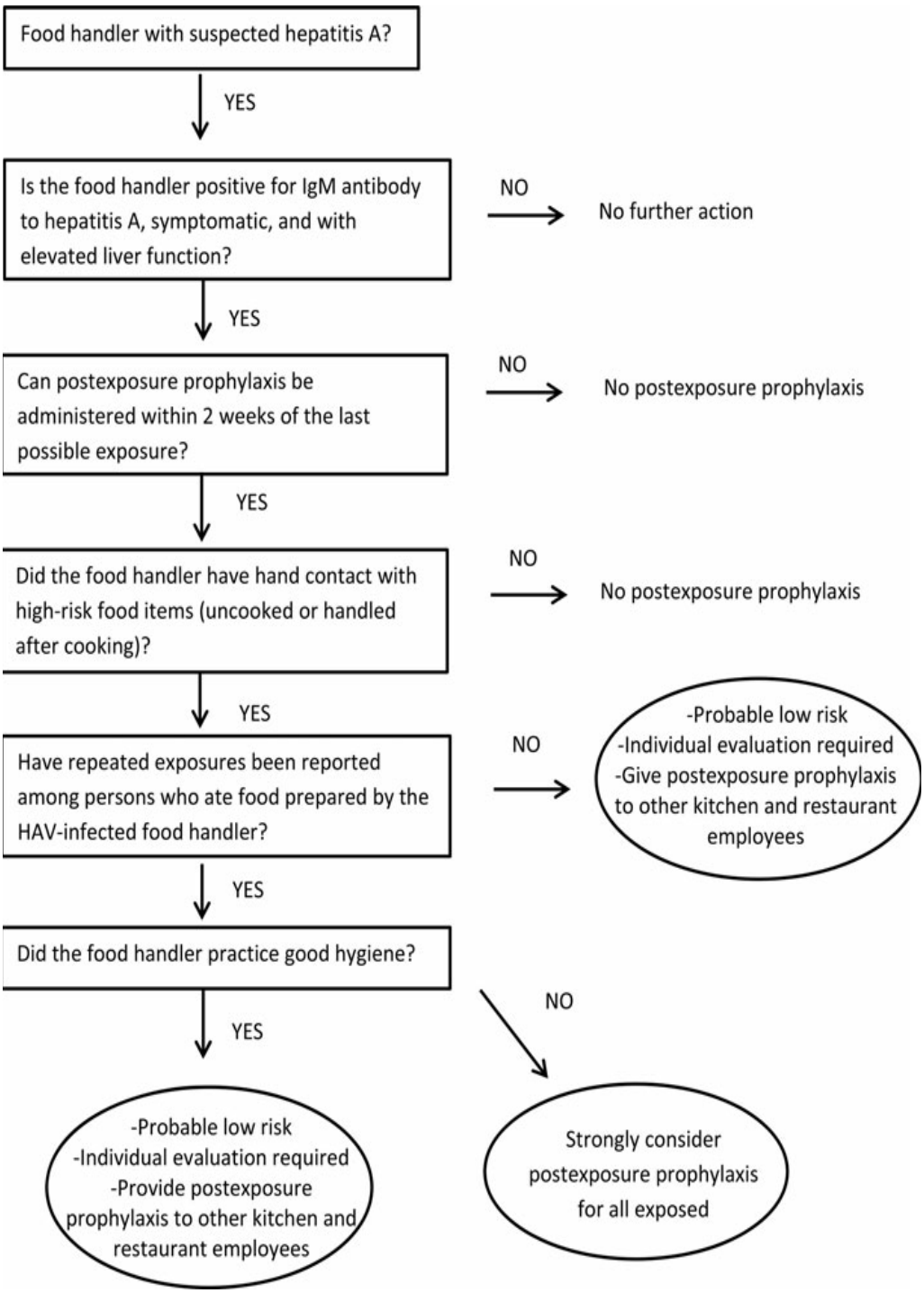
If the children are too old to need diapering, provide PEP to classroom contacts of the index patient. If HAV cases occur in ≥2 attendee households, PEP should be considered for members of households that have attendees in diapers.

Schools and other work settings

PEP is not routinely indicated when a single HAV case occurs in elementary or secondary schools or work settings other than those specified above.

PEP is indicated for persons who have close contact with cases if an epidemiological investigation indicates that transmission has occurred among students at a school

Figure 2: Algorithm Used by New York City Department of Health and Mental Hygiene to Determine the Need for Hepatitis A Virus Postexposure Prophylaxis of Restaurant Patrons[‡].



[*] And is not otherwise ruled out by IgM anti-HAV NAAT testing for hepatitis A virus performed in a public health laboratory.

[†] Hygiene assessments are subjective; a visit to the food handling area and interviews with the infected food handler, coworkers, and supervisors are often helpful. Additional factors include availability of hand washing facilities, hygiene training, previous assessments of sanitation practices in the facility, and the presence of medical conditions in the infected food handler that might make hygiene more difficult to maintain.

[‡] From: Ridpath A, et al. Hepatitis A Cases among Food Handlers: A Local Health Department Response—New York City, 2013. J Public Health Manag Pract. 2017;23(6):571-76. Adapted from: Fiore AE. Hepatitis A Transmitted by Food. Clin Infect Dis. 2004;38:705-15 and Carl M, et al. Foodborne Hepatitis A: Recommendations for Control. J Infect Dis. 1983;148:1133-1135.