



# Hepatitis A

## Disease Plan

### Quick Links

✓ Critical Clinician Information .....	2
✓ Why is Hepatitis A Important to Public Health? .....	3
✓ Disease and Epidemiology .....	3
✓ Public Health Control Measures .....	8
✓ Case Investigation .....	12
✓ Version Control .....	18
✓ UT-NEDSS Minimum/Required Fields by Tab .....	20

**Last updated: January 30, 2019, by Bree Barbeau**  
**UT-NEDSS Minimum/Required Fields by Tab updated March 3, 2022**

**Questions about this disease plan?**

**Contact the Utah Department of Health Bureau of Epidemiology: 801-538-6191.**

## ✓ CRITICAL CLINICIAN INFORMATION

### HEPATITIS A

<b>Clinical Evidence</b>
<p><b>Signs/Symptoms</b></p> <ul style="list-style-type: none"> <li>• Symptoms typically last several weeks, but can last several months depending on severity of infection. Common symptoms include: malaise, fever, nausea, jaundice, dark urine, anorexia, and abdominal discomfort.</li> </ul>
<p><b>Period of Communicability</b></p> <ul style="list-style-type: none"> <li>• 21 days prior to illness onset through eight days after the onset of jaundice.</li> <li>• HAV is present in stools during the 1-2 weeks before and for 1-3 weeks after onset of illness.</li> </ul>
<p><b>Incubation Period</b></p> <ul style="list-style-type: none"> <li>• The average incubation period for HAV is 28 days, with a range of 15-50 days.</li> </ul>
<p><b>Mode of Transmission</b></p> <ul style="list-style-type: none"> <li>• Primary transmission is by person-to-person via the fecal-oral route or through contaminated food or water.</li> <li>• Sexual contact (e.g., oral-anal contact), and among users of illicit drugs through close contact and occasionally through blood-to-blood exposure.</li> </ul>
<b>Laboratory Testing</b>
<p><b>Type of Lab Test/Timing of Specimen Collection</b></p> <ul style="list-style-type: none"> <li>• Serology <ul style="list-style-type: none"> <li>▪ IgM: primary method for diagnosis of acute HAV infection. Remains positive for 3-6 months, but can be positive for up to a year. Occasionally positive in adults up to two weeks after receiving hepatitis A vaccine.</li> <li>▪ IgG: Indicates past infection and immunity. Not diagnostic for acute infection.</li> </ul> </li> </ul>
<p><b>Type of Specimens</b></p> <ul style="list-style-type: none"> <li>• Blood/Serum</li> </ul>
<b>Treatment Recommendations</b>
<p><b>Type of Treatment</b></p> <ul style="list-style-type: none"> <li>• Treatment of HAV infection is supportive</li> </ul>
<p><b>Prophylaxis</b></p> <ul style="list-style-type: none"> <li>• <i>Pre-exposure prophylaxis</i>: inactivated whole-virus vaccines – HAVRIX, VAQTA, and TWINRIX.</li> <li>• <i>Post-exposure prophylaxis</i>: HAV vaccine (HAVRIX or VAQTA) for exposed healthy persons over the age of 12 months. TWINRIX should not be used as PEP. Immune globulin (IG) for persons younger than 12 months, immunocompromised, and persons with chronic liver disease. Post-exposure prophylaxis must be given within 2 weeks of exposure to be effective.</li> </ul>
<b>Contact Management</b>
<p><b>Isolation of Case</b></p> <ul style="list-style-type: none"> <li>• Persons associated with a school or childcare should be excluded for eight days after onset of jaundice.</li> <li>• Food handlers should be excluded from work until eight days after onset of jaundice.</li> </ul>
<p><b>Quarantine of Contacts</b></p> <ul style="list-style-type: none"> <li>• Exposed food handling facility employees should be excluded from their occupations for 28 days, unless they receive a prophylactic dose of hepatitis A vaccine or immune globulin (IG) within 14 days of exposure.</li> </ul>
<b>Infection Control Procedures</b>

- In a hospital setting, enteric precautions should be followed for eight days after onset of jaundice.

## ✓ WHY IS HEPATITIS A IMPORTANT TO PUBLIC HEALTH?

The hepatitis A virus (HAV) is highly infectious resulting in a high outbreak potential. Until 2004, HAV was the most frequently reported type of hepatitis in the United States (U.S.). In the pre-vaccine era, the primary methods used for preventing HAV were hygienic measures and passive protection with immune globulin (IG). Hepatitis A vaccines were licensed in 1995 and 1996. These vaccines provide long-term protection against HAV infection. The similarities between the epidemiology of hepatitis and poliomyelitis suggest that widespread vaccination of appropriate susceptible populations can substantially lower disease incidence, eliminate virus transmission, and ultimately, eliminate HAV infection.

## ✓ DISEASE AND EPIDEMIOLOGY

### Clinical Description

#### Hepatitis A Infection

HAV is a self-limiting illness characterized by sudden onset of symptoms including malaise, fever, anorexia and nausea. Jaundice, characterized by yellowing of the skin or whites of the eye, dark urine, and clay-colored stool, may follow a few days after initial symptoms. HAV causes disease with varying severity. Generally, symptom severity increases with age. Asymptomatic infections can occur, and are most common in young children. Thirty percent of infected children less than six years of age will have symptoms of disease. Symptoms typically last for several weeks; however, they can last several months in cases with particularly severe disease. Prolonged, relapsing hepatitis for up to one year can occur in some cases, although it is uncommon. Chronic infections are not known to occur. The elderly and persons with chronic liver disease (including chronic hepatitis B or C) or other underlying health conditions are at greater risk of severe HAV infection and death.

#### Causative Agent

HAV infection is caused by the hepatitis A virus, an RNA virus of the picornavirus family.

#### Differential Diagnosis

Hepatitis has a variety of causes including, but not limited to: viral hepatitises (A, B, C, D, E), Epstein-Barr virus, Yellow fever virus, drug-induced hepatitis, toxin-induced hepatitis, auto-immune hepatitis, alcoholic liver disease, Herpes simplex virus, and adenovirus.

#### Laboratory Identification

HAV infection cannot be definitively diagnosed without a blood test that measures various serologic markers for HAV. Anti-HAV IgM is the gold standard for the detection of acute illness. However, an Anti-HAV IgM positive adult without clinical features of viral hepatitis does not necessarily indicate acute infection. Such patients may have previous HAV infection

with prolonged presence of IgM anti-HAV, a false-positive result, or asymptomatic infection (which is much more common in children less than six years when compared with older children and adults).

### Serology Panels

The following table displays the serologic tests available and what their results mean.

**Table 1: Serology Panels**

<b>Serologic Test</b>	<b>Positive Result</b>
<b>Anti-HAV IgM</b>	<ul style="list-style-type: none"> <li>• Diagnostic for acute HAV infection.</li> <li>• False positive tests do occur. Consider clinical compatibility or epidemiologic links.</li> <li>• Anti-HAV IgM is detectable in virtually every case at their first clinical examination.</li> <li>• Remains positive for 3-6 months, but can be positive for up to a year.</li> <li>• Occasionally positive in adults up to two weeks after receiving hepatitis A vaccine.</li> </ul>
<b>Anti-HAV IgG</b>	<ul style="list-style-type: none"> <li>• Not diagnostic for acute HAV infection.</li> <li>• Indicates past infection and immunity.</li> <li>• Useful for determining the immune status of the patient.</li> <li>• Positive test results not routinely investigated.</li> </ul>
<b>Anti-HAV Total</b>	<ul style="list-style-type: none"> <li>• Not diagnostic for acute HAV infection.</li> <li>• Useful to determine immune status of the patient.</li> <li>• Positive test results not routinely investigated.</li> <li>• Does not differentiate between IgM and IgG antibodies.</li> </ul>
<b>HAV viral antigen tests</b>	<ul style="list-style-type: none"> <li>• Detects the presence of antigen in stool.</li> <li>• Viral shedding typically completed before the patient seeks medical attention.</li> <li>• Test has little routine value.</li> </ul>
<b>Nucleic acid amplification tests (NAT)</b>	<ul style="list-style-type: none"> <li>• Not recommended for diagnostic use.</li> </ul>

**Figure 1: Clinical, virologic, and serologic course of hepatitis A**

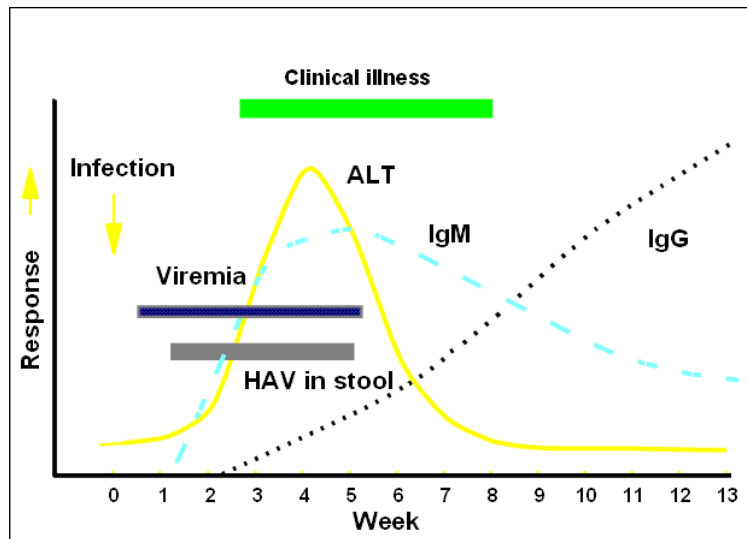


Image courtesy CDC

### Chemistry Panels

Liver function tests, such as ALT and AST (aminotransferases), are sensitive for liver damage, but are not specific for HAV infection. In patients without jaundice, elevated ALT levels are required to meet the clinical case definition. Typically, the normal value for ALT is 7-50 IU/L and AST is 10-34 IU/L, but reference ranges can be laboratory specific, so it is appropriate to ask the laboratory performing this test to provide their reference range. In acute HAV infection, ALT levels are typically observed in excess of 1,000 IU/L.

### Treatment

Treatment for acute HAV infection is supportive.

### Case Fatality

Generally, HAV is considered a disease with relatively low case fatality. Fatalities due to HAV are more common with advancing age and in patients with chronic hepatitis C or other underlying health conditions. Reported case fatality rates are 0.1% in infants and children, 0.4% between the ages of 15 and 39 years, and 1.1% in those over age 40.

### Reservoir

Humans are the only natural host for HAV. In endemic areas, HAV infection has been documented in pigs, cattle, and chickens.

### Transmission

Primary transmission of HAV is by person-to-person spread via the fecal-oral route or through contaminated food or water, which can cause common-source outbreaks. Cooked foods can also be a vehicle for transmitting HAV if the food was inadequately cooked or if the food was contaminated after cooking.

- *Intrinsic infection* is when food is contaminated at the point of production or distribution. These outbreaks are usually linked to produce or other foods that are not cooked.

- *Extrinsic infection* of foods occurs at the point of preparation or serving. The foods themselves are not contaminated, but they are contaminated during preparation, e.g., due to poor handwashing by food preparers. There is no limit to which foods could be extrinsically infected. Even cooked foods, if contaminated after cooking, can be the vehicle for an outbreak.

HAV can also be spread by sexual contact (e.g., oral-anal contact), and among people using illicit drugs – including injection drugs – through close contact, and occasionally, through a blood-to-blood exposure. Bloodborne transmission, although rare, can occur during the viremic phase of the disease. Transfusion-related HAV is quite rare. Intrauterine transmission of HAV has been described.

## **Susceptibility**

Infection is thought to provide lifelong immunity. Immunity after vaccination is thought to last a minimum of 25 years in persons who have received the primary vaccine and the booster, but the exact duration of protection has not yet been determined.

## **Incubation Period**

The average incubation period for HAV is 28 days, with a range of 15-50 days.

## **Period of Communicability**

A person with HAV is generally infectious from 21 days prior to illness onset through eight days after the onset of jaundice. HAV is shed in stool in greatest amounts during the one to two weeks before the onset of jaundice. Young children often shed HAV asymptotically, and viral shedding in children may persist for up to three months after onset of clinical illness.

## **Epidemiology**

HAV infections occur worldwide and are more prevalent in low socioeconomic areas where a lack of adequate sanitation and poor hygienic practices facilitate spread of the infection. The most commonly reported risk factor in the U.S. is international travel (up to 50% of cases), mainly to Mexico and Central and South America. Community outbreaks due to contaminated water or food have also been described.

**Figure 2: Geographic distribution of HAV infection**

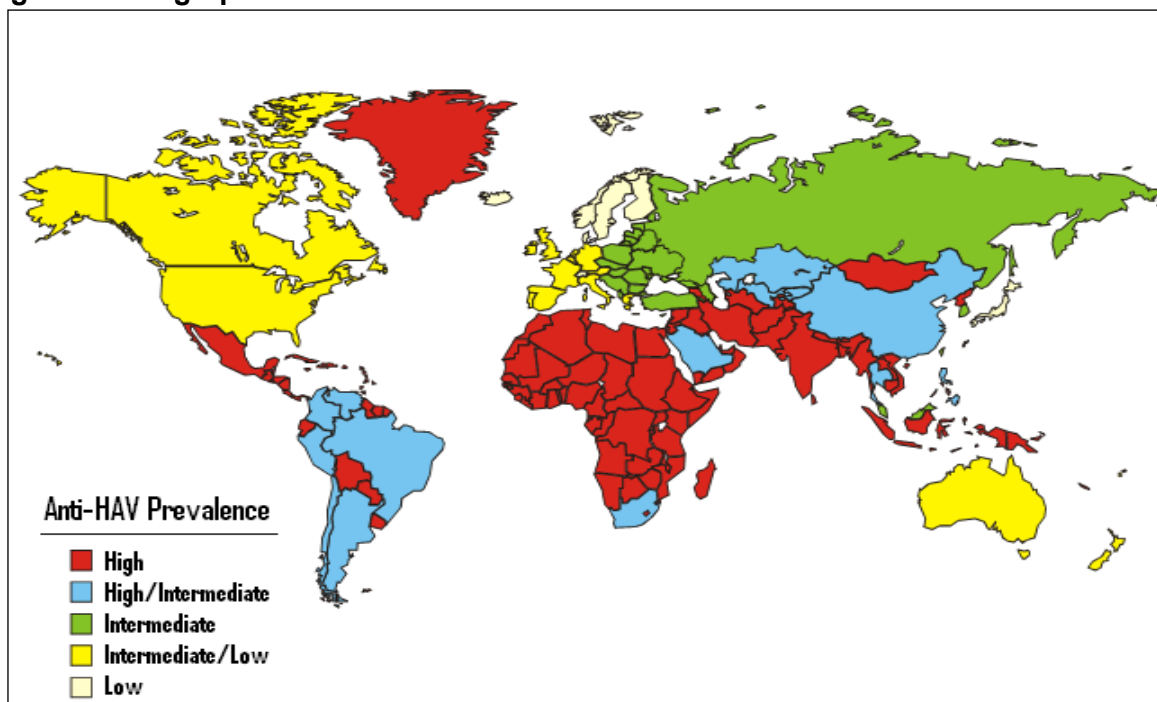


Image courtesy CDC

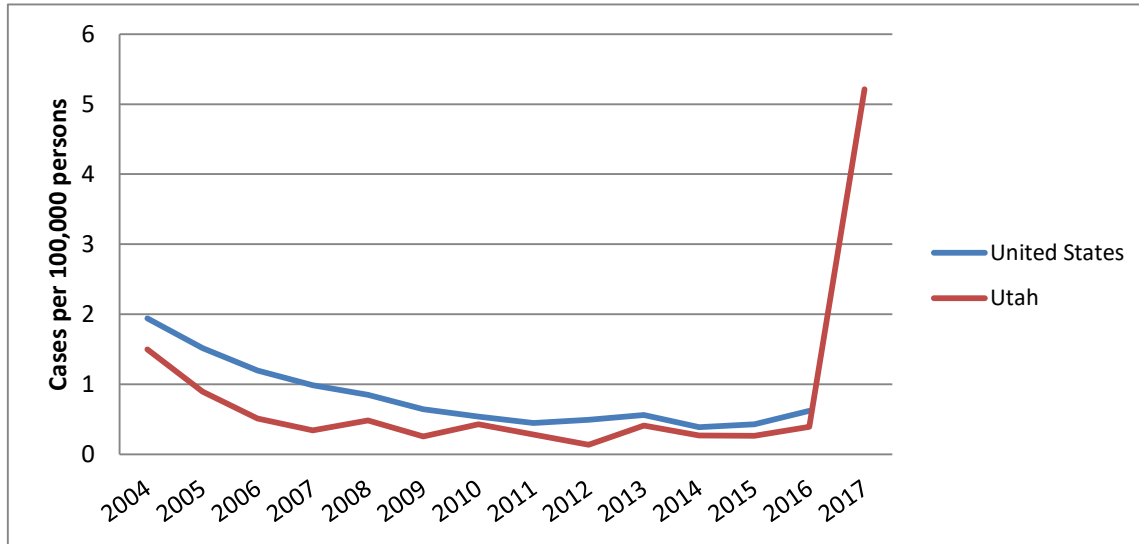
In developing countries, the disease is usually endemic. Because of this, most adults are immune due to prior infection, and outbreaks are rare. HAV outbreaks in developed countries have been linked to food and water sources contaminated with HAV. These foods include tomatoes, green onions, frozen berries, and lettuce. Many outbreaks related to produce have been linked to infected field workers who were not provided adequate toilet facilities. Food may be contaminated at the source of production or during preparation. Public and private health systems should be especially vigilant for HAV cases during natural disaster situations in which sewer systems are compromised.

Persons with a high risk for infection include:

- Travelers to regions where HAV is endemic
- Persons with chronic liver disease
- Men who have sex with men
- Users of injection and non-injection drugs
- Persons who have occupational risk for infection
- Persons experiencing homelessness
- Institutionalized persons (e.g., in prisons)
- Persons with clotting factor disorders
- Persons at risk of occupational exposure (those working with infected primates or with HAV in research laboratory settings)
- Household members and other close personal contacts of adopted children newly arriving from countries with high or intermediate hepatitis A endemicity
- Persons with direct contact with persons who have hepatitis A

During the late 1980s and 1990s, HAV rates in Utah were significantly higher than national rates. Since 1998, Utah rates have declined, and were below U.S. rates until a large outbreak in 2017. Historically, less than 20 cases per year have been reported in Utah. This trend is attributed to improved hygiene during food preparation and greater immunity in the population due to increased use of the hepatitis A vaccine. The low HAV rates in Utah continued through 2016. However, in May 2017, Utah experienced an HAV outbreak associated with a national outbreak which affected several other states, resulting in a large increase in the number of cases reported.

**Figure 3: Hepatitis A incidence Utah vs. U.S., 2004-2017**



## ✓ PUBLIC HEALTH CONTROL MEASURES

### Public Health Responsibility

- Investigate all confirmed cases of disease and fill out and submit disease investigation forms.
- Identify patient contacts and administer prophylaxis.
- Identify the source of infection for the patient and other possible contacts associated with the infection source.
- Provide information on the temporal, geographic, and demographic occurrence of HAV to facilitate its prevention and control.
- Provide education to the general public, clinicians, and first responders regarding disease transmission and prevention.

### Prevention

Vaccination is highly effective in preventing HAV infection, so the best way to prevent infection is through vaccination. However, the vaccine is not 100% effective, and additional measures should also be used to prevent infection and transmission. Persons with acute HAV should prevent fecal-oral transmission of the disease by not cooking or serving food for others until eight days after the onset of jaundice. Infected persons should also abstain from sex until eight days after the onset of



jaundice to prevent sexual transmission. Persons who had hepatitis A at age  $\geq 11$  years should not donate blood.

### **Personal Preventive Measures/Education**

Persons can avoid exposure to the virus by:

- Always washing their hands thoroughly with soap and water before eating or preparing food, after using the toilet, and after changing diapers.
- Washing their own hands, as well as their child's hands, after changing diapers, and disposing of diapers in a closed-lid garbage can.
- Washing their hands thoroughly and frequently when ill with diarrhea, or when caring for someone with diarrhea. Hands should be scrubbed for at least 15-20 seconds after cleaning the bathroom, after using the toilet or helping someone use the toilet, after changing diapers, before handling food, and before eating.
- Avoid consuming raw oysters, clams, and other shellfish which are especially risky for hepatitis unless proper storage and cooking procedures are followed.

Precautionary measures should be taken during oral-anal sexual contact. Latex barrier protection (e.g., dental dam) may prevent the spread of HAV to a case's sexual partners, and may be a way to prevent exposure to, and transmission of, other fecal-oral pathogens.

### **International Travel**

Travelers should pay attention to what they eat and drink. Recommendations to travelers include:

- Get the recommended travel immunizations (See <http://wwwnc.cdc.gov/travel/page/yellowbook-home-2014>).
- "Boil it, cook it, peel it, or forget it."
- Drink only bottled or boiled water, keeping in mind that bottled, carbonated beverages are safer than bottled non-carbonated ones.
- 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 your own raw fruits or vegetables, and do not eat the peelings.
- Avoid foods and beverages from street vendors.

### **Post-Exposure Prophylaxis (PEP)**

When indicated, hepatitis A vaccine or immune globulin (IG) can be administered to contacts of a case of HAV to prevent infection. **Note:** TWINRIX® (a vaccine containing both HAV and HBV antigens; manufactured by GlaxoSmithKline) may not be practical to use during an outbreak when large numbers of contacts may need PEP due to expense, need for follow-up doses, and vaccine shortages. The decision to use vaccine or IG should take into account patient characteristics, including age and medical conditions. Standard IG is a concentrated solution of antibodies prepared from pooled human plasma. IG should be administered as soon as possible after exposure, and it is 80-90% effective in preventing HAV if given within 14 days of exposure.

The vaccine is composed of inactivated whole viruses and has been demonstrated to be just as effective as IG in preventing disease in healthy persons 12 months of age and older if given within 14 days of exposure. According to ACIP, a vaccine may be used if IG cannot be obtained,

Vaccination (HAVRIX or VAQTA) is recommended for:

- Healthy persons aged 12 months of age and older

IG is recommended for:

- Infants <12 months
- Immunocompromised persons
- Persons who have had chronic liver disease
- Persons for whom vaccination is contraindicated

Pregnancy or lactation is not a contraindication to IG use. Persons administered IG for whom hepatitis A vaccine also is recommended for other reasons should receive a dose of vaccine simultaneously with IG.

The following conditions should be met to be offered vaccine or IG after an exposure to HAV:

- The case to which the person was exposed is a confirmed case. Laboratory confirmation of HAV is generally obtained before administering prophylaxis.
- Exposure occurred within the case patient's infectious period. A person with contact to the case outside the infectious period is not considered a case contact.
- Less than 14 days have passed since the last exposure occurred.

Persons who have received one dose of hepatitis A vaccine at least one month before a HAV exposure do not need prophylaxis. The safety of hepatitis A vaccine for pregnant women has not been determined, but there is no evidence that it is harmful to either pregnant women or their unborn babies.

The Bureau of Epidemiology (BOE) at the Utah Department of Health supplies IG to local health departments to administer to contacts of confirmed or highly suspected HAV cases in Utah. This IG can be stored at the local health department by arrangement with BOE. BOE does not supply IG dispensed for any other reason (e.g., pre-exposure prophylaxis, contact to a non-Utah case, etc.). In such circumstances, IG recipients or local health departments are responsible for the cost.

IG is administered in a single dose at the following dosage: 0.1 mL/kg (0.05 mL/lb). Plan to use approximately 2.5 mL IG per 50 lbs. Use the following algorithm to determine the amount of IG to administer:

$$\frac{\text{Person's weight in lbs}}{\text{Person's weight in lbs}} \times 0.454 \times 0.1 = \boxed{\text{mL IG}}$$

Vaccination for HAV is recommended for travelers to areas where HAV is endemic. However, travelers should receive a single dose of 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 <12 months of age (vaccine is not licensed for this age group)
- If they are traveling to an endemic area in <4 weeks, they may receive vaccine and IG at the same time (in different anatomical sites)

## Vaccine

The vaccines containing HAV antigen that are currently licensed in the U.S. include the single-antigen vaccines HAVRIX<sup>®</sup> (manufactured by GlaxoSmithKline, Rixensart, Belgium) and VAQTA<sup>®</sup> (manufactured by Merck & Co., Inc., Whitehouse Station, New Jersey) and the combination vaccine TWINRIX<sup>®</sup>. All are inactivated vaccines. In 2005, the Advisory Committee on Immunization Practices (ACIP) recommended that hepatitis A vaccination be included in the routine childhood vaccination schedule to be administered to infants 12-23 months of age. Additionally, ACIP has recommended that vaccination programs target children 2-18 years of age living in states, counties, or communities with an increased risk of HAV infection.

The safety of hepatitis A vaccine for pregnant women has not been determined, but there is no evidence that it is harmful to either pregnant women or their unborn babies.

Vaccination should also be considered for persons at high risk of contracting HAV.

Persons who should be vaccinated include the following:

- Persons traveling to, or working in, countries with high or intermediate rates of HAV, 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.
- Injecting and non-injecting drug users.
- Persons experiencing temporary homelessness.
- 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.
- Persons who anticipate close personal contact (e.g., household or regular babysitting) with an international adoptee during the first 60 days after arrival in the United States from a country with high or intermediate endemicity for hepatitis A.

The hepatitis A vaccine should be administered in two doses, 6-12 months apart. Both vaccines have pediatric and adult formulations. The hepatitis A vaccine is not protective until 14 days after receiving the initial dose.

## Isolation and Quarantine Requirements

**Isolation:** Persons diagnosed with HAV that are associated with school or childcare should be excluded for eight days after the onset of jaundice. Food handlers should also be excluded until eight days after the onset of jaundice.

**NOTE:** A food handler is any person directly preparing or handling food. This can include a patient care or childcare provider.

**Hospital:** Enteric precautions should be followed for eight days after onset of jaundice.

**Quarantine:** Exposed food handling facility employees should be excluded from their occupations for 28 days, unless they receive a prophylactic dose of hepatitis A vaccine or immune globulin (IG) within 14 days of exposure. (Exceptions to this exclusion are documentation of HAV vaccination or demonstrated serologic evidence of immunity to HAV.)

## ✓ CASE INVESTIGATION

### Reporting

All cases of hepatitis A should be reported to public health immediately.

**Table 2: Reporting criterion**

Criterion	Reporting		
<i>Clinical Evidence</i>			
Acute onset of illness		N	N
Jaundice		N	
Fever			O
Headache			O
Malaise			O
Anorexia			O
Nausea			O
Vomiting			O
Diarrhea			O
Abdominal Pain			O
Dark urine			O
<i>Clinical and Administrative Data</i>			
Healthcare record contains a diagnosis of hepatitis A	S		
Death certificate lists hepatitis A as a cause of death or a significant condition contributing to death	S		
<i>Laboratory Evidence</i>			
Hepatitis A IgM positive	S		
Hepatitis A RNA positive	S		
<i>Epidemiological Evidence</i>			
Contact (e.g., household or sexual) with a laboratory-confirmed hepatitis			N

A case 15-50 days prior to onset of symptoms			
--	--	--	--

Notes:

S = This criterion alone is SUFFICIENT to report a case.

N = All "N" criteria in the same column are NECESSARY to report a case.

O = At least one of these "O" (ONE OR MORE) criteria in **each category** (categories=clinical evidence, laboratory evidence, and epidemiological evidence) **in the same column**—in conjunction with all "N" criteria in the same column—is required to report a case.

\* A requisition or order for any of the "S" laboratory tests is sufficient to meet the reporting criteria.

## Case Definition

### Hepatitis A, Acute (2018)

#### Clinical case definition

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 >3.0 mg/dL, **OR**
- b) elevated serum alanine aminotransferase (ALT) levels >200 IU/L,

#### AND

- c) the absence of a more likely diagnosis

#### Laboratory Criteria

*Confirmatory laboratory evidence:*

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

#### Epidemiological Linkage

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

#### Case classification

*Confirmed:*

- A case that meets the clinical criteria and is IgM anti-HAV positive, **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 hepatitis A virus testing performed in a public health laboratory.

**Criteria to distinguish a new case of this disease or condition from reports or notification which should not be enumerated as a new case for surveillance**

Hepatitis A is usually self-limiting and does not results in chronic infection. However, up to 10% of persons with hepatitis A may experience a relapse during the 6 months after acute illnesses. Cases or 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.

**Table 3: Classification table: Criteria for defining a case of hepatitis A.**

Criterion	Confirmed						
<i>Clinical Evidence</i>							
Acute onset	N	N	N		N	N	N
Jaundice	N				N		
Fever	O	O	O		O	O	O
Headache	O	O	O		O	O	O
Malaise	O	O	O		O	O	O
Anorexia	O	O	O		O	O	O
Nausea	O	O	O		O	O	O
Vomiting	O	O	O		O	O	O
Diarrhea	O	O	O		O	O	O
Abdominal pain	O	O	O		O	O	O
Dark urine	O	O	O		O	O	O
Absence of a more likely diagnosis	N	N	N		N	N	N
<i>Laboratory evidence</i>							
Elevated bilirubin levels, ≥3.0 mg/dL		N				N	
Elevated serum ALT levels >200 IU/L			N				N
Hepatitis A IgM (anti-HAV) positive	N	N	N				
Hepatitis A RNA positive by NAAT				N			
Not otherwise ruled out by IgM anti-HAV or NAAT for hepatitis A virus testing performed in a public health laboratory	N	N	N	N			
<i>Epidemiologic evidence</i>							
Contact (e.g., household or sexual) with a laboratory					N	N	N

confirmed hepatitis A case 15-50 days prior to onset of symptoms							
Criteria to distinguish a new case							
Not counted as a case within the previous 6 months	N	N	N	N	N	N	N

Notes:

N = All “N” criteria in the same column are NECESSARY to classify a case. A number following an “N” indicates that this criterion is only required for a specific disease/condition subtype (see below). If the absence of a criterion (i.e., criterion NOT present) is required for the case to meet the classification criteria, list the absence of criterion as a necessary component.

O = At least one of these “O” (ONE OR MORE) criteria in **each category** (categories=clinical evidence, laboratory evidence, and epidemiologic evidence) in the same column—in conjunction with all “N” criteria **in the same column**—is required to classify a case. A number following an “O” indicates that this criterion is only required for a specific disease/condition subtype.

### Case Investigation Process

- Local and state health departments should be immediately notified.
- Food handlers should be excluded from work until eight days after the onset of jaundice.
- Childcare center cases should be excluded until eight days after the onset of jaundice.
- All case contacts should be identified and appropriately managed (explained in detail below).

### Outbreaks

CDC defines a foodborne outbreak as, “an incident in which two or more persons experience a similar illness resulting from the ingestion of a common food.” In order to confirm an outbreak of HAV, detection of hepatitis A IgM in serum from two or more persons who consumed epidemiologically implicated food is necessary. The source of the infection should be identified and measures taken to identify additional ill persons and/or to remove the source from consumers.

### Identification of Case Contacts and Management

A case contact meets one or more of the following descriptions:

1. **Close personal contacts** include household members, sexual contacts, drug-using contacts, and persons who shared utensils or cups with the case
2. **Childcare center contacts**
3. **Close contacts in a hospital or long-term-care setting**, especially contacts of incontinent cases
4. **Other food handlers** in an establishment if the index case is a food handler diagnosed with HAV

## **Childcare**

If a confirmed case of HAV occurs in a childcare setting, parents and staff must be notified. HAV fact sheets should also be sent with the letter. Control of HAV in childcare settings includes the following steps:

- When the case is an employee or child enrolled in a center in which all children are toilet-trained, vaccine or IG is recommended for susceptible employees in contact with the case, and for all susceptible children in the same room as the case.
- When a HAV infection is identified in an employee or a child, or in the household contacts of two of the enrolled children in a childcare center where children are not toilet-trained, vaccine or IG is recommended for all susceptible employees and all susceptible, enrolled children in the facility. During the six weeks after the last case is identified, susceptible new employees and children should also receive vaccine or IG.
- Strictly enforce policies about handwashing (with children and staff) and about disinfecting objects and environmental surfaces with appropriate disinfectants, such as bleach solutions.
- Make sure all parents and staff understand they must notify the program if any person in their household is diagnosed with HAV.
- If recognition of an outbreak in a childcare setting is delayed by three or more weeks from the onset of the index case, or if illness has occurred in three or more families, vaccine or IG should be considered for household members of all center attendees.

**Note:** Childcare setting employees who prepare food, feed children, or administer medications to attendees are considered food handlers and must follow the isolation and quarantine requirements for food handling facility employees who are contacts of cases of HAV.

## **School**

HAV occurring in a school setting usually does not pose a significant risk of transmission, and prophylaxis is usually not indicated. However, vaccine or 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 HAV occurs in a kindergarten or preschool class, or in a class where hygiene may not be optimal, more stringent control measures may be needed. 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 HAV.

## **Community Residential Programs**

Actions taken in response to a case of HAV infection 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 vaccine or IG within 14 days of exposure. If HAV occurs in a staff member of a residential program, the case should be considered a food handler if there was an opportunity to feed residents, distribute medication, prepare food, or perform dental procedures during the two weeks prior to symptom onset.



### **Infected Food Handler**

A confirmed case of HAV in a food handler is a potentially serious event and requires that risk for both coworkers and the public be assessed as quickly as possible. If a food handler is a laboratory-confirmed case of HAV, all other food handling employees in the facility must receive vaccine or IG within two weeks of exposure. Unless the food handling facility employee contacts can produce documentation of vaccination against HAV, can show immunity to HAV by serology, or receive vaccine or IG within two weeks of exposure, they must be excluded from work for 28 days from the date of exposure or until eight days after the onset of jaundice if symptoms develop. The same exclusion criteria apply to any food handling contacts of any confirmed case. In order to determine if the public needs to be notified of possible exposure to HAV, a complete food handling history of the case for the two 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 food handler.

Vaccine or IG administration to patrons should be considered if:

- During the time when the food handler was likely to be infectious, the food handler both directly handled cooked foods or foods that were served uncooked, and had diarrhea or poor hygienic practices; and
- Patrons can be identified and treated within two 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.

If it is determined that patrons would benefit from vaccine or IG administration, the local health department will be responsible for posting public notices, issuing press releases, and/or holding press conferences to identify and inform patrons at risk, and for coordinating the administration of vaccine or IG to individuals, with support from the Utah Department of Health as requested.

### **Hospitals**

Administration of vaccine or 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 HAV and can be considered a food handler, then food handler guidelines must be followed.

## REFERENCES

Centers for Disease Control, Surveillance for Acute Viral Hepatitis — United States, 2007. MMWR 58 (SS-3), 2009.

Hepatitis Virus (2015). In D. Heymann (Ed.), *Control of communicable diseases manual* (20th ed.). Washington, DC: American Public Health Association.

*Hepatitis A and Hepatitis E* (2012). In L. Pickering (Ed.), *Red Book: 2012 Report of the Committee on Infectious Diseases* (29th ed.). Elk Grove Village, IL: American Academy of Pediatrics.

Hepatitis A virus vaccination and postexposure prophylaxis. (2015, June 9). Retrieved July 31, 2015, from [http://www.uptodate.com/contents/hepatitis-a-virus-vaccination-and-postexposure-prophylaxis?source=search\\_result&search=Hepatitis+a&selectedTitle=3~150](http://www.uptodate.com/contents/hepatitis-a-virus-vaccination-and-postexposure-prophylaxis?source=search_result&search=Hepatitis+a&selectedTitle=3~150).

Principles and Practice of Infectious Disease (6<sup>th</sup> Edition), Gerald L. Mandell, John E. Bennett, and Raphael Dolin Eds; 2005.

Centers for Disease Control and Prevention. *Epidemiology and Prevention of Vaccine-Preventable Diseases*. Atkinson W, Wolfe S, Hamborsky J, eds. 12<sup>th</sup> ed. Washington DC: Public Health Foundation, 2011.

Council of State and Territorial Epidemiologists, *Hepatitis A Position Statement 2011*. Retrieved on 12/15/2014 from: <http://c.ymcdn.com/sites/www.cste.org/resource/resmgr/PS/11-ID-02.pdf>.

U.S. Food & Drug Administration (2017). New Recommendations to Increase the Dose of GamaSTAN S/D (Immune Globulin [Human]) When Used for Prophylaxis for Hepatitis A. Retrieved on July 25, 2017 from: <https://www.fda.gov/BiologicsBloodVaccines/BloodBloodProducts/ApprovedProducts/LicensedProductsBLAs/FractionatedPlasmaProducts/ucm574795.htm>.

## ✓ VERSION CONTROL

Updated Dec 2014 – CSTE reporting criteria, case definition, and case classification swim lanes included.

Updated Jul 2015 – Formatting and design edits. Quick links added. Addition of “Why is Hepatitis A and Hepatitis E important to Public Health?” section. Edits to “Causative Agent” and “Public Health Responsibility” sections. Updates to the list of references used. Addition of “UT-NEDSS Minimum/Required Fields by Tab” section.

Updated Nov 2015 – Separated Hepatitis A and Hepatitis E into individual plans.

Updated July 2016 – updated post-exposure guidance.

Updated July 2017 – Updated post-exposure guidance for IG administration.

Updated Sept 2017 – Added note on TWINRIX as PEP

Hepatitis A: Utah Public Health Disease Investigation Plan

Update June 2018 – Updated post-exposure guidance for vaccine; added Critical Clinician Information section.

Updated Jan 2019 – Updated Reporting and Case Definition sections to reflect updated CSTE position statement.

Updated March 2022 – Updated UT-NEDSS Minimum/Required Fields by Tab.

## ✓ UT-NEDSS MINIMUM/REQUIRED FIELDS BY TAB

### Demographic

- First Name
- Last Name
- Birth Gender
- Race
- Ethnicity
- State
- County
- Date of Birth
- Occupation
- Area Code
- Phone number

### Clinical

- Date Diagnosed
- Onset Date
- Died
- Date of Death
- Was the patient symptomatic for hepatitis?
- Symptoms
- Does the patient have a discrete onset of symptoms?
- Is the patient – Anti-HAV IgM+ or Epi-linked to a confirmed case
- Does the patient have – Jaundice or Elevated aminotransferase(s)
- List dose number, date, manufacturer and lot number of all doses given
- Did the patient have jaundice?
- Was the patient vaccinated for hepatitis A?

### Laboratory

- Was ALT (SGPT) done?
- Does the patient have an elevated ALT level?
- Test Result
- Test Type
- Does the patient have an elevated AST level?

### Epidemiological

- Attends school
- Did the patient attend while ill?
- What is the name of the facility where the patient handled food?
- Did the patient work while ill?
- What is the name of the childcare?
- Did the patient attend while ill?
- What is the name of the healthcare facility?
- Did the patient work while ill?
- If case works at the facility, did they work while ill?

### Contacts

- Childcare association
- Was the patient a contact of a person with confirmed or suspected hepatitis A infection?
- Any contacts ill with similar symptoms?
- List all contacts in the listed time period below (the communicable period) in the contacts table.
- Did the patient attend a group event during the exposure period?
- Does the case live or work in a long term care facility, assisted living center, or other type of group home setting?
  - Name of facility:

### Reporting

- Date first reported to public health

### Administrative

- Outbreak name
- State case Status
- Outbreak Associated