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INTRODUCTION TO THE USE OF THIS HANDBOOK

While this handbook has been modified significantly, we would like to acknowledge that much of the information contained here was developed by the Wisconsin Department of Health. This handbook is intended to provide a concise, practical guide for public health personnel who work with cases of acute hepatitis A virus (HAV) infection in Colorado. While it cannot address every scenario that arises when dealing with hepatitis A, it does offer specific guidelines for a variety of situations that are commonly encountered. Because you will encounter exceptional and extenuating circumstances in your investigations, the recommendations in this handbook must be used in conjunction with effective judgment in order to develop the most appropriate public health interventions.

REVISIONS / UPDATES

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<tr>
<th>Date</th>
<th>Changes</th>
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<tr>
<td>December 2016</td>
<td>Reformatted</td>
<td>Throughout</td>
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<tr>
<td>January 2016</td>
<td>Updates to web links; IgM testing at CDPHE; IG distribution and administration</td>
<td>Throughout</td>
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<tr>
<td>November 2012</td>
<td>Updates to web links; revision to duration of infectious period; updates to CDC case definition</td>
<td>Throughout; pages 5, 19, questionnaires; page 8</td>
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The handbook is organized into sections on diagnosis, child care settings, food handlers, and other topics. Frequently used abbreviations in the text are as follows:

HAV = hepatitis A virus  
IG = immune globulin  
LPHA = local public health agency  
CDPHE = Colorado Department of Public Health & Environment

In dealing with each hepatitis A situation, you will need to obtain certain types of important information. Most pertinent information can be gathered using:

- the basic hepatitis A case investigation form which should be administered to ALL HEPATITIS A PATIENTS WHO MEET THE CASE DEFINITION (this form is available on the CDPHE Communicable Disease Manual website: https://www.colorado.gov/pacific/cdphe/communicable-disease-manual);
- the supplemental sensitive occupation form for cases in HIGH RISK OCCUPATIONS OR SETTINGS (this form is part of the basic hepatitis A case investigation form and is available at the link above); and
- the worksheet for INSPECTION OF FOOD ESTABLISHMENTS at which a hepatitis A case has been identified as working (appendix A1).

We strongly encourage the use of these questionnaires and worksheets to help assure that the pertinent information is gathered during the initial interview, and to facilitate the statewide use of standardized survey instruments. We hope you will find the handbook useful.

**Please enter information from the hepatitis A case investigation form directly into CEDRS, or fax questionnaires to CDPHE at 303-782-0338.**
PART 1: BASIC INFORMATION, BACKGROUND, AND PROCEDURES

Hepatitis A is an acute inflammatory condition of the liver caused by the hepatitis A virus (HAV), a picornavirus. In the vast majority of cases, the infection is acquired by ingesting the virus. Virus particles are shed in the stool of infected individuals (fecal-oral transmission). In Colorado during 2009-2015, international travel was the most frequently identified risk factor, however a source for the majority of cases reported during this time frame was not determined. Very small numbers of HAV can produce infection, thus the disease is highly infectious and transmission is promoted by poor personal hygiene, especially poor handwashing, or overcrowding. Infection with HAV confers lifelong immunity. There is no chronic carrier state for hepatitis A, nor does it cause chronic liver disease, however, 10 to 15 percent of cases have prolonged or relapsing symptoms and viral shedding lasting up to 6 months. Persons infected with HIV are more likely to have a prolonged period of viral shedding, and children and infants can shed virus for longer periods than adults (up to several months).

SIGNS AND SYMPTOMS
The signs and symptoms of hepatitis A can vary among patients and are generally less severe and of shorter duration in children than in adults. Asymptomatic and mild infections can occur in all age groups, but are much more common in children. The majority of young children (less than age 6 years) infected with HAV do not become jaundiced. Subclinical cases can be identified by HAV serologic tests and by liver enzyme alterations. Asymptomatic cases of HAV infection can be just as infectious as clinically apparent cases.

Early signs and symptoms of hepatitis A usually include fever, anorexia, fatigue, myalgia, nausea, and occasionally diarrhea. These typically precede the onset of jaundice by approximately one week. Shortly after the early signs and symptoms appear, the patient may exhibit right upper quadrant and/or epigastric abdominal pain. Hepatomegaly, dark urine, and light-colored stools may precede the onset of jaundice by one to several days.

INCUBATION PERIOD
The incubation period of hepatitis A can vary from 15 and 50 days depending, to some extent, on the size of the dose of HAV ingested. In the majority of cases, disease onset occurs about 28 days after initial infection. During an outbreak, cases that occur within a two-week interval generally suggest co-exposure to a common source rather than separate generations of illness.

PERIOD OF COMMUNICABILITY
Fecal shedding of the virus peaks during the week prior to onset of symptoms. For purposes of public health interventions, a patient should be considered to have been infectious for 2 weeks prior to the onset of the early signs and symptoms, with peak infectivity during the 14 days prior to the onset of jaundice. Most patients are considered infectious for approximately one week after onset of jaundice. If a patient is asymptomatic, consider the day on which the positive serologic specimen was obtained as the date of onset, unless liver function tests suggest an earlier onset. Specific exclusion guidelines from work or child care are discussed below.

LABORATORY DIAGNOSIS
** In order to have a confirmed case of hepatitis A, the patient must be IgM anti-HAV positive and meet the clinical case definition described below.**

Serology:
Confirmation of hepatitis A requires serologic testing to detect IgM antibodies against HAV. The IgM class of antibody usually becomes detectable shortly before or at the time of illness onset. On rare occasions IgM will not become detectable until 1-3 days after onset of illness. Detectable anti-HAV IgM usually persists up to 6 months after infection (Figure 1). IgG class of anti-HAV follows the IgM response by several weeks, and persists for life in most cases. The presence of IgG antibody does not indicate when hepatitis A infection occurred. The receipt of immune globulin does not affect the accuracy of IgM testing, however receipt of hepatitis A vaccine can result in false positive IgM tests. The Red Book suggests that false positives can occur during the 2 weeks after immunization, however, CDPHE has noted false positives considerably later than this. Additionally, in the
setting of low disease prevalence, as in Colorado, false positives are common when IgM testing is performed in persons without evidence of hepatitis. Nonetheless, every reported positive anti-HAV should be carefully evaluated by public health. CDPHE disease reporting staff screen reports of anti-HAV IgM positive test results before releasing them to LPHAs for case investigation. See page 6 for more details on how CDPHE handles care reports.

The CDC MMWR report titled “Positive Test Results for Acute Hepatitis A Virus Infection Among Persons with No Recent History of Acute Hepatitis – United States, 2002-2004” provides additional information on interpreting anti-HAV IgM test results: http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5418a1.htm

Typically, HAV serology is performed by first testing the serum for the presence of total antibody against HAV (i.e. IgM and IgG combined). If this test is negative, no further hepatitis A tests need to be done on the specimen. If it is positive (it may be reported as HAV IgG/IgM+), the serum will then need to be tested specifically for IgM anti-HAV. Occasionally, a laboratory will report a HAV serology as “IgM and IgG positive”---this should be interpreted to mean the specimen was total antibody positive and one should always confirm that a specific test for IgM anti-HAV was performed and that it was positive.

Thus, three results are possible when testing for antibody against HAV:

<table>
<thead>
<tr>
<th>Serology result</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total antibody negative (IgG- IgM-)</td>
<td>No evidence of infection</td>
</tr>
<tr>
<td>Total antibody positive and IgM negative (IgG+, IgM-)</td>
<td>Prior infection with HAV (possibly years ago);</td>
</tr>
<tr>
<td></td>
<td>currently immune, not an active case of hepatitis A,</td>
</tr>
<tr>
<td></td>
<td>not infectious</td>
</tr>
<tr>
<td>Total antibody positive and IgM positive (IgG+, IgM+)</td>
<td>May indicate recent infection; public health follow-up needed to determine if</td>
</tr>
<tr>
<td></td>
<td>patient meets case definition</td>
</tr>
</tbody>
</table>

In most laboratories, the test for total anti-HAV and the test for IgM anti-HAV require several hours to two days to complete. Some physicians and laboratories mail the specimen to an out-of-state lab and it may take longer to receive a result. Furthermore, out-of-state labs may not be familiar with Colorado reporting requirements. We suggest, therefore, that when a high-risk setting or an outbreak is involved, the local public health agency
telephone the laboratory to request expedited processing and telephone or fax communication of results. The laboratory might run the IgM test concurrently with the total antibody test and reduce the turnaround time.

**Blood Chemistry:**
A variety of liver function tests [e.g., ALT (SGPT), AST (SGOT), alkaline phosphatase, bilirubin] which are used to detect hepatic damage or biliary stasis are abnormal (elevated) during an acute episode of hepatitis A. Of all these tests, ALT (SGPT) is the only one that is specific for liver damage and is usually the first liver function test to become abnormal, peaking just prior to the onset of jaundice (Figure 1). During acute viral hepatitis resulting from HAV infection, ALT levels are typically in the range of 500-2000 IU. Normal ALT levels are usually less than 50 IU (although it is important to check the upper range of normal for the particular lab that performed testing). Elevations in ALT will occur even in patients who are not symptomatic.

Levels of ALT can sometimes be useful as a temporary substitute for the HAV antibody test, since it can usually be performed more quickly than the antibody test. Although ALT elevation usually occurs concurrently with seroconversion to IgM positive status, in some patients, elevated ALT levels may precede the presence of detectable IgM anti-HAV by a few days. Thus this enzyme can be an earlier indicator of hepatitis than seroconversion. ALT levels drop relatively soon after onset of illness. Therefore, a patient who is IgM anti-HAV positive but has a normal ALT is likely to be in the convalescent (non-infectious) stage of hepatitis A infection. It is also possible the IgM was falsely positive.

Although these hepatic tests can be of value, it is important to realize that they are merely a gauge of liver function damage; none of these tests are specific for HAV infection. To confirm a diagnosis of acute hepatitis A testing for IgM antibody to HAV is required.

**CDC/CSTE CASE DEFINITION FOR ACUTE HEPATITIS A**
Clinical case definition: an acute illness with discrete onset of any sign or symptom consistent with acute viral hepatitis (e.g., fever, headache, malaise, anorexia, nausea, vomiting, diarrhea and abdominal pain), and either jaundice or elevated serum aminotransferase levels (AST and ALT)

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

**Confirmed case:**
- 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)

**HOW CDPHE RECEIVES AND CONFIRMS REPORTS OF HEPATITIS A**
In Colorado, physicians, health care providers, and hospitals are required by Board of Health regulation to report confirmed or suspected cases of hepatitis A to the state or local health department within 24 hours, and laboratories are required to report persons with positive IgM anti-HAV tests within 24 hours. HAV total antibody positive results in the absence of a positive IgM are not reportable.

In general, CDPHE uses the following process to verify the diagnosis of acute hepatitis A and notify the local health agency of a suspect or confirmed case:

When a laboratory report stating “HAV IgM positive” is received from a laboratory, CDPHE staff:
- Contact the health care provider’s office for necessary demographic information, symptom history, and LFT results
- Enter the case into CEDRS as a confirmed case if patient meets the CDC case definition (acute illness consistent with hepatitis A and HAV IgM positive and elevated LFTs or jaundice)
- Enter the case into CEDRS as a suspected case if it is unclear whether patient’s illness meets the CDC case definition.
- Delete the case report from CEDRS if the case does not meet case definition.
- Contact the local public health agency where the case resides to report confirmed or suspected case of hepatitis A so that local agency staff can begin case follow-up. When the case status is suspect, local public health agencies often must follow up with the patient and/or additional providers to obtain
symptom information to determine case status. CDPHE epidemiologists are available for consultation to
determine case status.

Hepatitis A cases are also reported by infection control practitioners and by local public health agencies. When
reports are received in CEDRS, they are reviewed to see if all necessary information is included. If data are
missing, CDPHE staff contact the report source or healthcare provider for additional information and notify the
local public health agency of the case.

SUBMISSION OF SERUM TO THE CDPHE LABORATORY FOR HEPATITIS A TESTING
The state laboratory no longer performs anti-HAV IgM testing.

In outbreak situations, particularly when a common foodborne source is suspected, CDC can perform
sequencing of the hepatitis A virus. When approved by CDC, CDPHE epidemiologists work with clinical
laboratories to obtain leftover serum for shipping to CDC.

POST-EXPOSURE PROPHYLAXIS (PEP)
In 2007, the ACIP issued new recommendations for hepatitis A post-exposure prophylaxis (PEP) that include use
of hepatitis A vaccine or immunoglobulin, depending on the age and medical history of the exposed person who
requires PEP. The circumstances under which a person is considered exposed are outlined starting on page 12.

The complete guidelines for PEP administration can be accessed at
http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5641a3.htm, and are summarized here:

Persons who have recently been exposed to HAV (in the past 14 days) and who previously have not received
hepatitis A vaccine or had confirmed hepatitis A disease in the past should be administered a single dose of
single-antigen vaccine or IG (0.02 mL/kg) as soon as possible. Information about the relative efficacy of vaccine
compared with IG post-exposure is limited, and no data are available for persons aged >40 years or those with
underlying medical conditions. Therefore, decisions to use vaccine or IG should take into account patient
characteristics associated with more severe manifestations of hepatitis A, including older age and chronic liver
disease. Additionally, the magnitude of the risk of HAV transmission from the exposure should be considered.

- For healthy persons aged 12 months - 40 years, single-antigen hepatitis A vaccine at the age-appropriate
dose is preferred to IG because of vaccine advantages that include long-term protection and ease of
administration. Pregnant and breastfeeding women can receive the vaccine.

- For persons aged >40 years, IG is preferred because of the absence of information regarding vaccine
performance and the more severe manifestations of hepatitis A in this age group; vaccine can be used if
IG cannot be obtained.

- IG should be used for children aged <12 months, immunocompromised persons, persons who have had
chronic liver disease diagnosed, and persons for whom vaccine is contraindicated.

Persons administered IG for whom hepatitis A vaccine is also recommended for other reasons should receive a
dose of vaccine simultaneously with IG. For persons who receive vaccine, the second dose should be
administered according to the licensed schedule to complete the series. The efficacy of IG or vaccine when
administered >2 weeks after exposure has not been established.

CDPHE POLICY FOR SUPPLYING PEP MEDICATION (IG OR HEPATITIS A VACCINE):
CDPHE supplies medication for PEP to LPHAs for use in exposure situations which potentially impact the public's
health (e.g., prophylaxis of restaurant employees/patrons, child care staff/attendees, etc.)

CDPHE's policy is to supply medication for PEP at no cost to LPHAs for the prophylaxis of family members and
other contacts who can be immunized within 14 days of exposure and who:

- Attend/live/work in a setting with a high risk of transmission to the public or
- Are indigent and cannot afford to obtain it through a physician or
- For whatever reason, would not receive IG/hepatitis A vaccine unless it was obtained and administered
through a public health agency.
CDPHE has limited funds to purchase medication for PEP so this medication is NOT to be used for pre-exposure situations such as international travel or for those persons who are concerned that they may have been exposed to hepatitis A but who do not meet exposure criteria outlined below.

If there are questions about standing medical orders for administration of PEP, local public health agencies should consult with their regional nurse consultant or the CDPHE Office of Planning, Partnerships, and Improvement.

**IMMUNE GLOBULIN (IG)**

**Basic Information**

Immune globulin, also called immune serum globulin or gamma globulin, is a sterile solution of antibodies (immunoglobulin). IG is effective in preventing hepatitis A if given prior to exposure (e.g., for travel to developing countries), or in the early incubation period after exposure to HAV. It is considered to be approximately 80 to 90 percent effective if given within 14 days after exposure to HAV. IG given more than 14 days after exposure is unlikely to prevent hepatitis A, and thus should not be used. Receipt of IG will not interfere with subsequent serologic tests for HAV. Current supplies of IG contain no preservatives and should be refrigerated at 35.6°F (2°C) to 46.4°F (8°C) during storage and shipping. (In addition to IG, administration of hepatitis A vaccine is recommended, if appropriate, to provide long lasting immunity to the hepatitis A virus.)

IG is prepared from pooled human plasma processed by cold ethanol fractionation. Only plasma proven to be free of hepatitis B human antigen, antibody to the hepatitis C virus and antibody to the human immunodeficiency virus (HIV) is used in the preparation of IG. In addition, the ethanol fractionation and a solvent-detergent viral inactivation process remove any HIV and Hepatitis C infectivity from the IG. There is no evidence that hepatitis B, Hepatitis C virus, HIV, or any other viruses have been transmitted by intramuscular IG commercially manufactured in the United States.

**Dosage and Administration**

IG is administered intramuscularly (IM), preferably in the anterolateral aspects of the upper thigh and the deltoid muscle of the upper arm. Do not use the gluteal region because of the risk of injury to the sciatic nerve. The dose for hepatitis A prophylaxis is 0.02 ml/kg (typically 2 ml are given to an adult). This dosage provides immunity for up to 3 months. (For pre-exposure prophylaxis, a better approach is to receive a dose of hepatitis A vaccine, followed a second dose of vaccine 6-12 months later, since this will provide long lasting immunity.) Standard IG should never be given intravenously; special IG preparations are available for intravenous use, but these are not intended for hepatitis A prophylaxis.

**Adverse Reactions and Precautions**

Serious adverse effects from properly administered IG are rare. The most common problem encountered with the use of IG is discomfort at the injection site. Less common reactions include flushing, headache, chills, and nausea. Rare, serious reactions include chest pain or constriction, dyspnea, and anaphylaxis. Although such reactions are uncommon, it is prudent to have epinephrine and other means of treating acute reactions immediately available. An increased risk of systemic reactions results from inadvertent intravenous administration.

IG administration is not contraindicated during pregnancy.

Because of the potential for adverse reactions, IG should not be administered to persons known to have immunoglobulin A (IgA) deficiency. It should not be given to patients with severe thrombocytopenia or any coagulation disorder that would preclude intramuscular injection. Caution should be used in giving IG to a patient with a history of adverse reactions to immune globulins.

Persons receiving IG should not receive any live virus vaccine, such as measles, mumps, rubella (MMR), and varicella vaccine, for approximately 3 months after IG administration for MMR, and for at least 5 months for varicella vaccine. There is no indication that IG interferes with oral polio vaccine or yellow fever vaccine. If someone has received a live virus vaccine injection within 14 days before receipt of IG, s/he may receive IG, but subsequent revaccination with the live virus vaccine will probably be necessary. Such individuals should contact their physician regarding the advisability and timing of revaccination.

Patients receiving IG through their local public health agency (LPHA) should be asked to sign a consent form. A sample consent/information form for IG recipients is supplied in appendix A4. Recipients should be cautioned...
that IG is only 80 to 90 percent effective in preventing hepatitis A, and that hygiene is crucial in preventing transmission of HAV to others in the unlikely event that they do develop symptomatic or asymptomatic infection.

How IG is Supplied/ How to Obtain
IG is available in 2 ml single dose vials. IG is costly and has a relatively short shelf life. CDPHE-supplied IG may only be used for post-exposure prophylaxis.

CDPHE no longer maintains a supply of IG on site at CDPHE. Instead, CDPHE continues to purchase IG and partners with several LPHAs that have agreed to store and distribute IG when needed to other LPHAs. CDPHE is using a shared spreadsheet to track IG across LPHAs. For access to this tracking tool or for other IG questions, please call the Communicable Disease Branch at 303-692-6420 or 303-692-2700. Because CDPHE must be informed about current hepatitis A activity and because of the need to ensure that the IG supply is used appropriately, callers who request IG will be asked to describe their circumstances and planned intervention.

HEPATITIS A VACCINE
For more detailed information, including groups for whom routine immunization is recommended, see the MMWR website for: “Prevention of hepatitis A through active or passive immunization: recommendations of the Advisory Committee on Immunization Practices (ACIP)” May 19, 2006 / 55(RR07);1-23. http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5507a1.htm.

A Vaccine Information Statement and additional information can be found at http://www.immunize.org/vis.

Use of Hepatitis A Vaccine
Hepatitis A vaccine has been used since the mid-1990s to prevent infection when given prior to exposure to hepatitis A virus. It has also been found to be effective among certain populations in post-exposure situations as described above. In addition, IG plus hepatitis A vaccine should be considered in settings where exposed, unvaccinated persons are considered at increased risk for ongoing exposure to hepatitis A virus, and for individuals for whom vaccination is routinely recommended.

Basic Information
Hepatitis A vaccines licensed for use in the United States are HAVRIX and VAQTA. Both are highly effective inactivated vaccines, prepared by methods similar to those used for inactivated poliovirus vaccine. Cell-culture-adapted virus is propagated in human fibroblasts, purified from cell lysates by ultrafiltration and exclusion gel chromatography or other methods, formalin inactivated, and adsorbed to an aluminum hydroxide adjuvant. HAVRIX is preserved with 2-phenoxyethanol, and VAQTA does not contain a preservative.

Hepatitis A vaccine should be refrigerated at 36°F (2°C) - 46°F (8°C) during storage and shipping.

Dosage and Administration
Hepatitis A vaccine is administered intramuscularly (IM) in the deltoid muscle or anterolateral aspects of the upper thigh. Manufacturers provide vaccines in pediatric (>1 year of age up to 18 years) and adult formulations. Two doses in the recommended time frame will confer maximum immunity.

When given with IG, hepatitis A vaccine should be given simultaneously and at a different injection site.

Hepatitis A vaccination can induce detectable IgM in blood tests in 8 to 20 percent of adults if tested 2 to 3 weeks post-vaccination. Only 1 percent test IgM+ when tested 1 month after vaccination.

Adverse Reactions and Precautions
The most frequently reported side effects have been local reactions such as soreness, tenderness, pain, warmth, injection site induration, headache, and malaise. Serious side effects after receiving hepatitis A vaccine are not reported any more frequently than would be expected for an unvaccinated population.

Hepatitis A vaccine should not be administered to persons with a history of a severe reaction to a prior dose of hepatitis A vaccine or to a vaccine component (e.g., alum, 2- phenoxyethanol).

How Hepatitis A Vaccine is Supplied/How to Obtain
Hepatitis A vaccine is supplied in single dose vials.
Routine immunization
Pediatric formulation of Hepatitis A vaccine is already supplied to LPHAs by the VFC Immunization Program. Contact the Immunization Branch at 303-692-2650 for questions.

Post-exposure prophylaxis (PEP)
In situations where hepatitis A vaccine is indicated for PEP, LPHAs should counsel patients to go to their usual source of health care for vaccination. If the exposed person is unable or unlikely to obtain PEP from his or her provider, LPHAs may administer adult formulation of hepatitis A vaccine, as appropriate, to exposed persons using section 317-supplied vaccine.

As with other CDPHE-supplied vaccine, LPHAs may charge patients an administrative fee up to $21.38, but must waive the fee if a client is unable to pay. When vaccine is administered for PEP, LPHAs should do the following:

- Enter the number of doses of pediatric and/or adult vaccine into the index-patient’s CEDRS record.
- Indicate the number of doses administered for PEP purposes when ordering replacement vaccine from the Immunization Branch.
- Report all doses to the Colorado Immunization Information System (CIIS).

For information on replacing vaccine doses used for PEP, please contact the CDPHE Immunization Branch at 303-692-2650.
PART 2: PUBLIC HEALTH INTERVENTIONS

HEPATITIS A CASE INVESTIGATION

Considerable time and money can be wasted implementing control measures in response to a “case” of hepatitis A which, in reality, may be some other disease. *Therefore, whenever a case of hepatitis A is reported to a public health agency, it is absolutely necessary to confirm the diagnosis (i.e. establish that the patient is IgM anti-HAV positive and meets the clinical criteria).* The LPHA should always confirm that a test for IgM anti-HAV was performed and that it was positive. Do not rely on vague results such as “the blood test was positive for hepatitis A.”

CDPHE staff review all suspected hepatitis A cases that are entered into CEDRS, contact the health care provider for symptom information, and contact the laboratory for liver function test information (see p. 6). Cases that clearly do not meet the case definition are deleted. Confirmed cases and those that might meet the case definition based on patient interview are referred to the relevant LPHA for case investigation.

LPHA staff should interview confirmed and suspected hepatitis A cases as soon as possible using the hepatitis A case investigation form (available at: https://www.colorado.gov/pacific/cdphe/communicable-disease-manual). Collect as much information as possible during the first patient interview, as patients are sometimes difficult to contact after the initial interview. This questionnaire is intended to assist the LPHA in collecting information necessary to make prudent decisions about which contacts of a case may be at risk of developing HAV infection and generate ideas about the source of a patient’s HAV infection.

Specifically, use this interview to:

- Determine if the patient’s symptoms are consistent with the clinical case definition (p. 6). If this isn’t clear, please contact the CDPHE Communicable Disease Branch at 303-692-2700 to discuss before taking other actions such as administering PEP.
- Determine the patient’s occupation and if the patient attends or resides in a group residential or institutional setting.
  - Disease control for low risk settings is discussed on page 12. Cases with diarrhea should be excluded from work/school until diarrhea has resolved, even if they are not in a high-risk setting.
  - A high-risk setting can be defined as any setting outside of the case’s household in which a substantial risk of HAV transmission from the patient to others exists. Examples of high-risk settings include food service establishments, food processing operations, child care facilities, nursing homes, assisted living facilities, hospitals, institutions for the developmentally disabled, correctional facilities or any other group residential setting. Other settings may be considered high risk if circumstances exist which favor HAV transmission. Management of high risk settings begins on page 12.
- Determine the identity and occupations of other members of the household.
- Ascertain if the case prepared any meals that were consumed by persons other than household members within the two weeks immediately preceding symptom onset (e.g., pot lucks, church picnics, restaurants, etc.)
- Collect exposure information for the 15 to 50 days prior to onset of symptoms to determine source of infection, if possible.
- Educate the case regarding hepatitis A and ways to avoid transmission. Hepatitis A information from the CDC may be useful for this purpose (http://www.cdc.gov/hepatitis/hav/index.htm).
- Collect demographic and risk factor data necessary for complete reporting.

After completing the case investigation, the LPHA should complete the CEDRS record, including the hepatitis A surveillance form, or fax the completed form to CDPHE at 303-782-0338 so that CDPHE may enter the necessary data.

Determining the source of infection: Unless there has been a known contact with another case of hepatitis A, it may be difficult to determine the source of infection. Remember that the incubation period for HAV is usually around 30 days (range 15 to 50 days). The hepatitis A case investigation form contains questions designed to identify potential exposure sources, and includes a section for patient food history. If a close contact of a case is in a high risk setting for the acquisition of HAV (especially a child in child care), and no other potential source of HAV can be identified, it is reasonable to suspect that contact person was the source of infection; testing that contact should then be considered, if appropriate.
When a cluster of unrelated cases with no apparent common exposure occurs in a community, it is possible that transmission might have occurred from a common food exposure. Obtaining a patient food history for meals eaten 15 to 50 days prior to onset is difficult because of the time elapsed. The location of meals eaten or prepared outside the home (e.g., restaurants, potlucks, meals-on-wheels, etc.) can be more important initially than the specific foods which were consumed. If a detailed history cannot be obtained, the patient can be asked to identify restaurants or other sources of out-of-home meals at which s/he eats frequently. Also, it is helpful to obtain general dietary preferences of the case (e.g., does the case follow a special diet like vegetarian/vegan/gluten free/etc., does the case avoid certain foods, are there foods the case eats routinely, such as smoothies for breakfast every day, etc.).

In a potential outbreak situation, contact CDPHE as soon as possible. Interview cases with a comprehensive hypothesis-generating questionnaire that includes an open-ended section for restaurants. If one or a few establishments are repeatedly named by these initial patients, a “prompt list” of establishments can then be developed for interviewing subsequent cases. The list should also include names of approximately 10 other food establishments located within reasonable proximity to the suspect establishment(s). This prompt list should then be used to supplement subsequent interviews. If patients can recall specific dates or food items eaten when they visited certain establishments, these should be noted on the list. Once the prompt list is in use, the patient being interviewed should still be given the opportunity to identify other establishments not on the list. Even after the probable source of an outbreak is identified, keep an open mind regarding other possible exposure sources for each new case.

PREVENTING FURTHER HAV TRANSMISSION: LOW RISK SETTINGS

If the patient does not live in, attend, or work in a high-risk setting, LPHA intervention efforts should focus on two goals:

- Determining the patient’s source of HAV.
- Minimizing the chances of further transmission among the patient’s contacts.

- Educate the patient about hepatitis A and the crucial importance of personal hygiene to prevent transmission. Hepatitis A information from the CDC may be useful for this purpose ([http://www.cdc.gov/hepatitis/hav/index.htm](http://www.cdc.gov/hepatitis/hav/index.htm)).

- Case-patients in low risks settings who have received education concerning the transmission and prevention of hepatitis A generally do not need to be excluded from work or school unless they are symptomatic with diarrhea.

- Make recommendations regarding PEP (IG or hepatitis A vaccine, as appropriate) for close contacts or for persons who consumed food that the patient handled.

Close contacts can generally be defined as: all previously unvaccinated household and sexual contacts; persons who have shared drugs with a confirmed case; and, possibly, other persons with ongoing, close personal contact (e.g., regular babysitters) with a confirmed case.

If a close contact reports previously receiving hepatitis A vaccine or having hepatitis A infection, it is good practice to verify this by reviewing CIIS, asking for a printed immunization record, or obtaining other documentation where possible. It is essential to do this if the close contact is in a high risk occupation or setting.

PREVENTING FURTHER HAV TRANSMISSION: HIGH RISK SETTINGS

RESPONSE TO A SUSPECTED CASE OF HEPATITIS A IN A HIGH-RISK SETTING

Occasionally health care providers or others will report a suspected case of hepatitis A before IgM results are available. As with any suspected case of hepatitis A, it is very important to confirm the diagnosis before proceeding with any disease control measures. However, in high-risk situations where a suspected case has a high potential for transmitting HAV to others, information gathering can begin before a reported case is serologically confirmed.

While anti-HAV IgM results are pending, it is generally useful for the LPHA to:

- Obtain the patient’s liver enzyme test results and detailed symptom information from the health care provider to determine whether the case will meet the case definition if the IgM result is positive.
Interview the patient to determine risk factors for hepatitis A acquisition, exactly which signs/symptoms were experienced, and when onset of these symptoms occurred.

Determine if the patient works in, lives in or attends a high risk setting.

Exclude the suspected case from the high risk setting immediately.

Ask the testing laboratory to expedite the serologic results.

If hepatitis A is strongly suspected, gather some basic information about the high risk setting such as exact work duties and days/shifts worked by the patient. The supplemental sensitive occupation form is designed for this purpose.

If the suspect case works as a foodhandler, an environmental health specialist can inspect the workplace and an assessment can be made of the case-patient's hygiene.

RESPONSE TO A CONFIRMED CASE IN A FOODHANDLER
The key to effective intervention is timeliness. Some measures can be taken while the confirmation of hepatitis A is still pending. The importance of confirming the diagnosis cannot be overstated.

Once a foodhandler is determined to be a confirmed case, the following eight steps should be taken:

1. A food handler with confirmed hepatitis A should be excluded from work according to these guidelines:
   - for the interval extending through day 7 following onset of jaundice.
   - for the interval extending through day 14 following onset of symptoms if s/he does not develop jaundice.

2. The local, regional, or state (depending on the jurisdiction) environmental health specialist should perform an environmental assessment of the food establishment. The assessment should focus on handwashing practices and restroom facilities, the types of foods and beverages that are served, and how these foods and beverages are handled. A list of all employees should be obtained. (Worksheets for food establishment assessment and staff are in appendices A1 and A2.)

The manager should be apprised of the situation and given complete information about the disease, including the mode of transmission, symptoms, and prevention. Provide the employer with a hepatitis A fact sheet (http://www.cdc.gov/hepatitis/hav/index.htm). Stress the importance of employees being excluded from food/beverage handling when ill. Inform the manager of your plans to immunize employees as discussed below. Consider posting a written notice for employees at the worksite containing pertinent information on the disease, its prevention, dates/times of clinics to be held for employees, and a contact person's name and phone number at the LPHA.

3. LPHA staff should use the supplemental sensitive occupation form for cases and the worksheet for food establishment inspection in appendix A1 to:
   - Obtain a very careful history of which days and shifts the case worked, exact duties the case performed, types of food handled, any use of disposable gloves.
   - Assess the case’s hygiene.
   - Ask the case whether s/he worked while symptomatic with diarrhea; if so, note the dates on which this occurred.
   - Inquire about tasks performed by the case during his/her infectious period which may have differed from normal job duties.
   - Ascertain if food prepared on one shift is carried over to the next shift or to the next day.
   - Determine if other employees eat food prepared by the index case (this applies in food plant situations as well as dining establishments). The case, his/her supervisor, and possibly some co-workers may need to be interviewed about these points.
   - Ascertain whether the case is working another high-risk job.

4. PEP (IG or hepatitis A vaccine) is strongly recommended for all foodhandlers at the establishment who are not immune to hepatitis A (through vaccination or documented infection). Verify hepatitis A immunity by reviewing CIIS, asking for a printed immunization record, or obtaining other documentation where possible.

At the time of PEP administration, employees can be individually interviewed about a past or present history of illness compatible with hepatitis A; if they have recently experienced such symptoms, arrange
hepatitis A testing for these employees. A sample worksheet designed to keep track of food establishment staff is contained in appendix 2.

5. Educate the food establishment employees about the disease (symptoms, mode of transmission, prevention). Provide the employees with HAV information from CDC.
   - Stress the importance of thorough handwashing and regular use of a fingernail brush as the most effective measure in preventing transmission of HAV, both in the workplace and at home.
   - Teach the employees that PEP does not guarantee they will not develop hepatitis A.
   - Stress the importance of employees not working if they feel ill, and of notification of the LPHA contact person if they develop signs or symptoms compatible with hepatitis A.
   - Ensure appropriate glove use is in place for all ready to eat foods. If the facility has a glove use waiver, strongly consider requiring the use of disposable gloves by employees ready to eat foods for 50 days from the last day the index case-employee worked while s/he was infectious. Once the index case returns to work s/he should also wear gloves for the same period, because a small percentage of case-patients can experience prolonged or relapsing illness with viral shedding.

Educate employees about the proper use of gloves:
   - Gloves should be changed if a tear is noticed;
   - Glove use is no substitute for good handwashing practices – hands should be washed prior to using or replacing gloves;
   - A fresh pair of gloves must be worn after each employee use of the restroom or whenever gloves have been used to touch items other than food or clean utensils used to directly prepare food.

6. The manager of the establishment should monitor employees daily for the presence of signs and symptoms of hepatitis A (anorexia, nausea, vomiting, diarrhea, abdominal pain, fever and jaundice). If specific symptoms develop, a supervisor should immediately remove the employee from food handling duties, contact the LPHA, and refer the person to a physician for diagnosis. The monitoring should continue through an interval extending 50 days from the end of the transmission risk period. Monitoring can be performed at the start of each shift by reminding employees of the risk of HAV transmission and the signs and symptoms of the disease. In addition, staff who call in sick should be questioned to determine if their illness is compatible with hepatitis A.

7. Any other employee who is IgM anti-HAV positive should be excluded from work using the same guidelines as for the index case in point #1 of this section. An employee with elevated liver enzymes should be immediately excluded from work until his/her IgM anti-HAV status is known.

8. An environmental health specialist should periodically visit the establishment during the transmission risk period to confirm compliance with all recommended control measures. Both the employees and managers need be aware that employees who fail to comply with control measures will be excluded from work.

   If it becomes apparent that HAV transmission from the index employee to co-workers or to patrons has occurred, re-evaluating the symptom status of all foodhandlers may be indicated. In some circumstances, facility closure may be indicated. Please contact CDPHE to discuss if this action might be necessary.

ASSESSMENT OF THE LIKELIHOOD OF TRANSMISSION TO THE PATRONS OF A FOOD ESTABLISHMENT

Whenever a case of hepatitis A occurs in a foodhandler, determine whether there is a sufficient risk of HAV transmission to the public to warrant notification of the establishment’s patrons. This determination is ultimately made at the local level, but should be made in consultation with CDPHE personnel. The Centers for Disease Control and Prevention (CDC) recommends that prophylaxis of patrons of a food establishment be considered if all three of the following conditions are met (see MMWR 2006;55 (No. RR-7) - http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5507a1.htm).

1. The infected foodhandler is assessed to have less than adequate personal hygiene OR worked while symptomatic with diarrhea. Hygiene may be subjectively judged by evaluating:
   - personal cleanliness, especially hands and fingernails
   - personal history of handwashing after bowel movements (may be unreliable)
1. Personal recall of handwashing facilities (color of soap, hot/cold water availability, location of towel dispenser, etc.)
2. Availability of toilet paper, disposable towels, soap and water in rest room facilities
3. History of diarrhea/loose stools on days s/he worked (likelihood of fecal contact)

2. The individual has handled high-risk foods with bare hands. High-risk foods are items which are served raw or which are handled after being cooked. (HAV is inactivated by a temperature of 190° F for 4 minutes.) Examples of high-risk foods include but are not limited to:
   - Lettuce, tomatoes, etc. on sandwiches that receive no further heating
   - Salads, vegetables, and fruits at salad bars
   - Sliced cooked foods, such as ham, which may be contaminated during boning or slicing procedures
   - Cold cuts
   - Cake, donut, or pastry icing
   - Ice that is scooped by hand
   - Condiments for drinks (olives, lime wedge, etc.)

3. It has been 14 days or less since these potentially contaminated foods were served. If the foodhandler is judged to have poor personal hygiene and has handled high-risk foods, those persons who have eaten these foods within 14 days should receive PEP (neither IG nor hepatitis A vaccine is effective for PEP after this time).

If these three criteria are met and the decision is made to notify the public, notification is generally performed by issuing a news release to appropriate media sources. It is crucial that such a news release contain very specific information that will accurately convey to the public the nature of their risk, and a suggested course of action designed to minimize their risk and reduce the chances of further transmission of hepatitis A. Generally, if a news release is issued in a timely fashion and advises patrons to receive PEP (IG or hepatitis A vaccine), the LPHA will hold a clinic to offer immunizations to these individuals. However, since health care providers can offer hepatitis A vaccine to those for whom it is appropriate, the statement should also urge patrons to seek to seek vaccine (if appropriate) from their personal health care providers. Use the Health Alert Network to notify of medical providers in the area to ensure that physicians have adequate information to manage patient care and respond appropriately to patient inquiries. CDPHE can provide sample HAN broadcasts when they are needed.

For a typical situation involving a food handler who is judged likely to have exposed patrons to HAV, the following elements should be incorporated into a news release:
- The specific dates and times when patrons may have been exposed.
- The specific food item(s) judged to have been contaminated by the food handler.
- A clear statement indicating who is an appropriate candidate for PEP and who should receive IG vs. vaccine.
- Information about the protective effects of IG and vaccine.
- Where and when to obtain PEP (e.g., private medical providers, public immunizations clinic if these are to be held).
- The fact that PEP is protective only if administered within 14 days of exposure.
- Mechanism of HAV transmission, incubation period, clinical signs and symptoms, the potential for asymptomatic infection.
- The importance of hygiene in preventing further HAV transmission.
- The need to contact one’s physician if signs and symptoms compatible with hepatitis A are noted.
- A sample news release can be found in appendix 3.

Management of foodhandlers who are contacts of known cases: See general discussion of case-contacts who work in high-risk occupations (page 20).

RESPONSE TO A CONFIRMED CASE IN A CHILD CARE SETTING

Child care facilities (CCF) include child care centers and home child care (licensed or unlicensed). Hepatitis A virus transmission in a CCF can be insidious because children in this age group are often asymptomatic when infected. The virus may spread easily when infected children are in diapers. Whenever a case of hepatitis A in a child care attendee or provider is reported, the first response should be to confirm the diagnosis; i.e. ensure
the “case” is positive for IgM anti-HAV. Once the case is confirmed, the following actions should be taken by the LPHA disease control/epidemiology staff and environmental health staff:

[Some of the following recommendations were adapted from the “Red Book” Report of the Committee on Infectious Disease of the American Academy of Pediatrics, 2015 edition.]

1. A child care attendee or provider with confirmed hepatitis A should be excluded from the CCF according to these guidelines:
   - For a period extending through day 7 following onset of jaundice
   - For a period extending through day 14 following onset of symptoms if s/he does not develop jaundice
   - Individuals who are asymptomatic but are IgM antibody positive and determined to be potentially infectious be excluded for a period extending through day 14 following the date the positive specimen was obtained. However, if ALT levels are known to be normal, that person may safely return to the CCF.
   - If all child care staff and attendees have received PEP (see item #5 below), the case may return to the facility at any time.
   - Parental education is necessary to ensure that an excluded child is not simply moved to another CCF.

2. Determine if the index case attended the child care facility while symptomatic with diarrhea and if the case is toilet trained.

3. Visit, or otherwise become familiar with, the CCF to determine:
   - The number of attendees and staff
   - Age of attendees
   - Whether attendees of different age groups are mixed (perhaps at the start and end of the day) and whether staff members “float” between rooms and age groups; note presence of diapered children within groups
   - The physical layout of the child care facility, paying particular attention to hand washing and diaper changing facilities, and areas where food preparation occurs (e.g., proximity of handwashing sink and food prep area to diaper changing tables; availability of nailbrushes, soap and disposable towels at staff handwashing sinks; etc.)
   - Overall handwashing practices in the facility (e.g., handwashing by staff and children after using the restroom or changing diapers, or before preparing or eating food; etc.).
   - Overall sanitizing and disinfection practices in the facility (e.g., type of sanitizing/disinfection products used; disinfection of changing tables; sanitizing/disinfection practices of toys and commonly touched surfaces; etc.)
   - How meals and snacks are prepared and served by the staff, and whether children have an opportunity to handle food which might be consumed by others both within and outside of their cohort group (this includes treats brought from home). Is food preparation performed by staff who also provide direct childcare?

4. Educate child care staff regarding hepatitis A (symptoms, modes of transmission, prevention). Provide them with HAV fact sheets.
   - Stress the importance of thorough handwashing as the most effective measure in preventing transmission of HAV, both in the CCF and at home.
   - Because HAV can survive on environmental surfaces for weeks, environmental hygiene is also important. Soiled play objects and surfaces (e.g., diaper changing tables) should be thoroughly cleaned with soap and water, disinfected with an approved disinfectant, and then rinsed with water.
   - Set up a mechanism with the child care provider for recognition and prompt reporting of any new suspect hepatitis A cases to the LPHA.

5. The LPHA should consider post-exposure prophylaxis (IG and/or hepatitis A vaccination, if appropriate) of staff/attendees according to the following general guidelines.
   - When a case occurs in an enrolled child:
     (1) For child care facilities with all children older than 2 years and who are toilet trained:
       PEP (IG and/or hepatitis A vaccine) is recommended for all unvaccinated staff in contact with the index case and for unvaccinated children in the same room as the index case. Certain
circumstances, related to factors mentioned in points #2 and #3 above, may warrant extending PEP to other unvaccinated attendees and staff. If in doubt about the appropriateness of PPE administration, consider consultation with CDPHE staff.

(2) For facilities with children not yet toilet trained:
When one case of hepatitis A occurs in a CCF attendee, or in the household contacts of two or more of the enrolled children, PEP is usually recommended for all unvaccinated staff and children in the facility. (If strict cohorting of children and staff is the norm for a particular CCF, it may be possible to limit prophylaxis to a particular at-risk cohort.) During the six weeks after the last case is identified, new employees and children who are unvaccinated should also receive vaccine or IG, as appropriate.

(3) If hepatitis A illness has occurred in two or more unrelated households, PEP is usually recommended for all unvaccinated staff and children in the facility, and for household contacts of all enrolled children who are not toilet trained. During the six weeks after the last case is identified, new unvaccinated employees and children should also receive vaccine or IG, as appropriate.

When a case occurs in a child care provider:

Determine if the case-employee has a known source for his/her infection that is not connected with the child care setting (e.g., spouse diagnosed with hepatitis A five weeks before or travel to a country where hepatitis A is endemic).

(1) If no source is apparent, assume that the case-employee acquired HAV infection from an unrecognized case of hepatitis A in an attendee of the child care. In such a situation, assume that transmission is occurring in the CCF and that the recommendations above in 5.a.(3) should apply.

(2) If it is apparent that the case-employee acquired HAV infection outside of the child care setting, PEP is recommended for those attendees with whom the index case-employee has had direct contact and for any attendees and staff who may have eaten food prepared or handled by the case-employee during his/her infectious period.

6. Inform parents of attendees about the situation at the facility. Educate them about the symptoms, mode of transmission, and prevention of hepatitis A; inform parents of any planned course of action such as IG/vaccine administration clinic. This is usually accomplished with a letter and an HAV fact sheet. Ask parents to inform the LPHA if other family members are ill or develop illness compatible with hepatitis A.

7. Management of child care attendees who are contacts of known cases: It may be reasonable to exclude a previously unvaccinated child from a CCF who is a close contact of a confirmed hepatitis A case-patient, especially if that case-patient is the primary caregiver and the child is still in diapers. If exclusion is being considered, testing the child for hepatitis A (both serology and liver function tests) may be performed to rule out the possibility that the child was actually the source for the recognized case and thus is now immune, although interpretation of results can be complicated if the child has received vaccine.

RESPONSE TO A CONFIRMED CASE IN A SCHOOL SETTING

Elementary/Middle/High Schools
In general, classroom exposure in these grades does not pose a significant risk of infection, and post-exposure prophylaxis (PEP) is not routinely indicated for classroom contacts. However, prophylaxis should be considered for close friends of a school age child if they spend considerable time at each other’s homes and/or share food items within or outside the school setting. Unusual circumstances could warrant classroom-wide prophylaxis if, for example, the index case-patient handled food thought to be high risk that was consumed by classmates or if a case occurs in a classroom with special health concerns or developmentally disabled students.

In general, students with hepatitis A should be excluded from school through the seventh day following onset of jaundice or through the fourteenth day following onset of symptoms if s/he does not develop jaundice (same as for child care settings). If this exclusion period is burdensome for a case-patient in this setting, the LPHA may consider permitting an earlier return to school provided (1) the patient does not have diarrhea, and (2) there is
some assurance that the patient will practice good hygiene during the infectious period (e.g., education about
proper handwashing, daily checks by the school nurse, etc.).

Kindergartens
The potential for hepatitis A transmission in kindergartens falls somewhere between that of elementary schools
and child care facilities. An assessment of the need for PEP for students and staff must be done on a case-by-
case basis. The investigator should ascertain the case-patient's hygiene, and whether potentially risky activities
occurred within the kindergarten during the time the index case would have been infectious. Examples of this
might include an infected pupil handing out food items to classmates, or soiling of the premises from a fecal
accident. A history of such potentially risky activities will usually warrant PEP for unvaccinated classroom
contacts.

RESPONSE TO A CONFIRMED CASE IN AN INSTITUTIONAL SETTING

Hospitals
Hepatitis A in a hospitalized patient rarely results in a recommendation for post-exposure prophylaxis (PEP) for
hospital personnel or roommates of the case-patient. However, once the diagnosis is confirmed, a careful
contact investigation should be performed, as PEP is sometimes indicated. For example, if the case-patient
could not or did not routinely wash hands after bowel movements and contaminated the environment with
infective material; or if soiling of the environment occurred due to fecal accidents, diaper leakage, etc., PEP
should be considered for unvaccinated staff and/or other hospitalized patients who might have had contact
with infective material. Therefore, information about the case patient such as fecal continence and visibly
soiled hands or bed linens should be gathered by the public health investigator and hospital infection control
practitioner in order to make a determination regarding the need for PEP. Such information must be correlated
with knowledge of when the patient may have been infectious and the fact that PEP is only effective if given
within 14 days of exposure.

In adult patients, standard precautions should ordinarily be sufficient to prevent the transmission of HAV in a
hospital setting. [From CDC guidelines for isolation: Garner JS, Guideline for isolation precautions in hospitals.

Contact precautions are recommended when the case-patient is:
- A child, or
- An incontinent adult, or
- A patient who is unwilling or unable to wash hands after touching infectious material or who shares
  contaminated articles with other patients.

Contact precautions include:
- Place the patient in a private room. When a private room is not available, place the patient in a room
  with a patient(s) who has active infection with the same microorganism but with no other infection
  (cohorting).
- Masks are not indicated.
- Gowns are indicated if soiling is likely.
- Wear gloves when entering the room. During the course of providing care for a patient, change gloves
  after having contact with infective material that may contain high concentrations of microorganisms
  (fecal material). Remove gloves before leaving the patient's room and wash hands immediately with an
  antimicrobial agent or a waterless antiseptic agent.
- Hands must be washed after touching the patient or potentially contaminated articles and before taking
care of another patient.
- If use of common equipment or items is unavoidable, then adequately clean and disinfect them before
  use for another patient.

Although there is a brief period of viremia during the late incubation period of HAV infection, hepatitis A has
not been reported to occur after inadvertent needle sticks.

In general, the risk of HAV transmission from health care or dental workers to patients or to other staff is low,
and such a scenario would not routinely call for PEP. However, this risk might be appreciable enough to
warrant patient prophylaxis if the case's job responsibilities included feeding patients or assisting patients with
dental/denture hygiene while the case was infectious. Factors such as the use of gloves and the hand washing
practices of the infected staff person should be considered, as well as whether the employee worked while symptomatic with diarrhea. Hospital personnel who consumed foods prepared or handled by the case while s/he was infectious should also be considered for prophylaxis.

Health care workers with hepatitis A should be excluded from "hands on" patient care for an interval extending through the 7th day following onset of symptoms, but usually the person is ill and is not intending to work in this time period. If a hospital food service employee develops hepatitis A, the guidelines listed above for infected food handlers apply.

Nursing Homes and Other Long Term Care Facilities
When a case occurs at a long-term care facility, especially in a staff person, the potential for transmission of hepatitis A is likely to be greater than in a typical hospital setting because of the nature of certain types of care given at nursing homes (e.g., feeding, providing oral/denture hygiene, cleaning diapered residents).

The guidelines listed above for hospitals apply equally to long-term care facilities. Visitors of residents with confirmed HAV infection, volunteers, and health care practitioners that visit the facility (such as specialists/therapists) should be notified regarding their risk of acquiring the disease.

Facilities Serving the Developmentally Disabled
In general, the potential for HAV transmission in facilities (residential or daily rehabilitative) serving the developmentally disabled is high, presumably due to a combination of poor hygienic practices and crowded conditions. Furthermore, unless the case becomes obviously icteric, case recognition within these facilities may be difficult because of limited verbal abilities of some of the clients/residents. For these reasons, the occurrence of hepatitis A in such facilities should provoke a quick, aggressive response.

When investigating a report of hepatitis A in a client/resident of a facility serving the developmentally disabled, the LPHA should work with the facility's infection control practitioner (if present) to ensure collection of the following information:

- Confirm the diagnosis; i.e., make certain the case is definitely IgM anti-HAV positive and meets the other case definition criteria.
- Determine facts about the case which could contribute to increased risk of HAV transmission; e.g., profoundness of disability, mobility of resident, fecal continence, level of hygiene, coprophilic behavior (an abnormal interest in feces).
- Determine which other individuals had contact with the case during the infectious period and the nature of that contact. To do this, one must ascertain the physical layout of the facility, which rooms/units/wings the case may have frequented; staffing patterns at the facility (staff limited to certain units, versus floating staff); presence of person who may have visited the case (both other clients of the facility and outside visitors); and any extramural schooling, vocational training, or supportive employment programs the case attended during his/her infectious period. Follow-up within such extramural programs is an important part of the LPHA's response to HAV infection in developmentally disabled persons.

After the above factors are determined, PEP should be provided to persons who had potentially risky contact with the case. The liberal use of PEP is strongly recommended in such a setting. If there is evidence that more than one generation of hepatitis A has occurred in the facility, consider recommending facility-wide prophylaxis, especially if the cases are not limited to a single unit/floor/wing of the facility. Note that some facilities may have records of their clients' HAV immune status. If this is the case, considerable time, effort, and money can be saved by knowing which clients/residents are immune (total anti-HAV positive or documented vaccine) and therefore do not require prophylaxis. Ambulatory clients who have confirmed or suspected hepatitis A infection will likely need to be restricted to some degree during their infectious period in a manner that will minimize the potential for spread of HAV.

If a case of hepatitis A occurs in a staff member at a facility serving the developmentally disabled, public health interventions depend upon an assessment of the case's hygiene and the type of job duties performed. Ascertain whether the case's job responsibilities included high-risk activities such as feeding clients of the facility or assisting clients with oral hygiene. Assess the case's personal hygiene by interviewing the patient and his/her supervisor about the index employee's handwashing practices and the use of disposable gloves during activities which could potentially transmit HAV. Determine whether the employee worked while symptomatic with diarrhea.
Clients of the facility who have had potentially risky contact with the case-employee should be strongly considered for prophylaxis if there is any suggestion that the case-employee's hygiene was less than adequate or if s/he worked while symptomatic with diarrhea. In the event that a case has no apparent source of HAV infection, consider the possibility that s/he acquired the infection from a client of the facility. In such situations, a heightened index of suspicion for hepatitis A among facility clients would be advisable.

MANAGEMENT OF CONTACTS OF CASES - THE QUESTION OF EXCLUSION IN HIGH RISK SETTINGS

Whether to restrict the activities of an individual who does not currently have hepatitis, but has been recently exposed to HAV, is a difficult issue to decide. Consider these scenarios:

A confirmed case of hepatitis A in a 2-year-old child has been reported to you. The child's mother works in a restaurant where she does food preparation for the salad bar. Should this woman be excluded from work? If yes, for how long?

A physician reports a confirmed case of hepatitis A in a young woman who has a child attending child care. Should the child be held out of the facility? Should the child be tested?

Such decisions are difficult because exclusion of contacts is often financially burdensome to the individual and his/her family. In addition, there are no established guidelines for restricting the activities of contacts. Furthermore, it is impossible to determine retrospectively that an aggressive exclusion policy had been necessary and correct in a specific situation. Only if one decides not to exclude a contact, and this decision subsequently results in more people being exposed to HAV, can you know in retrospect that your policy was not aggressive enough.

Determining how long to exclude a risky contact is likewise difficult. Within the first two weeks of the index case onset, there is often the possibility that the case and the contact may have had a common exposure. For approximately the next 35 to 40 days, it is possible that the contact may become part of the second generation of hepatitis A cases, having been infected by the index case. Thus, the period during which the contact person may develop hepatitis A extends approximately 50 days from the onset date of the index case.

With these difficulties in mind, public health personnel should consider the following points when deciding whether to exclude a contact of a case of hepatitis A from a high-risk setting:

- Is the contact susceptible or immune to HAV infection?
- Did the contact receive PEP in a timely fashion? (i.e., within 14 days of exposure) The answer to this question may not be straightforward if contact with the index case was ongoing over a continuous period of time. This is frequently the situation that occurs within a household.

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</tr>
</tbody>
</table>

Consider the hypothetical mother/salad bar worker mentioned above. The 2-year-old had onset May 1, saw his pediatrician May 3, and hepatitis A was confirmed May 9. The mother then received PEP on May 11. Although it is was appropriate to give PEP, it is important to realize that the child had been infectious since April 17 (14 days prior to onset). The prophylaxis of the mother would have doubtful efficacy if she had been exposed to HAV prior to April 27 (14 days from the date of PEP administration).
Unless confirmation of the case and prophylaxis of family contacts are accomplished quickly, the timeliness (and therefore the efficacy) of IG administration to family contacts of cases is often questionable.

- What is the nature of this individual’s contact with the index case? How strong is the possibility of HAV transmission to the contact?
- Can you depend on the contact to follow instructions regarding hygiene? Is contact incontinent of stool or a diapered child?
- Can the contact be moved to a low risk job at his/her workplace? (e.g., temporarily move the salad bar worker to table busing or cashier work.) If this is possible, it would be much less burdensome on the employee than total exclusion.
- How serious would be the consequences of failure to exclude if the contact were to subsequently develop hepatitis A? Consider the worst-case scenario.
- Can you somehow monitor the contact during the risk period by obtaining serial liver enzyme levels, and/or checking periodically on compliance with hygiene measures of the usage of disposable gloves in a food establishment setting. Remember, by the time liver transaminase are elevated as a result of acute hepatitis A, the patient has already been infectious for several days.

After considering all of these factors, local public health personnel may temporarily exclude a contact of a case if it is their judgment that the contact is likely to develop hepatitis A and would subsequently pose a significant risk to the public health. During an outbreak of hepatitis A, more stringent measures may be applied in an effort to bring the outbreak under control.

ADDITIONAL SUGGESTIONS FOR PUBLIC HEALTH AGENCIES WHEN HANDLING HEPATITIS A OUTBREAKS OR SITUATIONS INVOLVING HAV EXPOSURE OF THE PUBLIC

Notification:
- Compile a list of telephone and fax machine numbers and email addresses for CDPHE, adjacent LPHAs, hospital infection control practitioners, and local media offices (if you have a public information officer, use their assistance in contacting the media). Have these numbers on hand before outbreaks occur.
- Make certain the appropriate public health agencies are notified of possible outbreaks or situations involving exposure of the public to HAV. These agencies include CDPHE and nearby LPHAs which may be affected. Send copies of any news releases to CDPHE prior to sending them to the media.
- Use the Health Alert Network (HAN) to notify all hospital infection control practitioners and/or ERs, urgent care clinics, and major clinics in your area. This is particularly important if a news release is being issued. Include a copy of the media release with any necessary addenda to ensure that these practitioners will have adequate information to manage the care of their patients.
- Consider the potential for exposure of groups of people from other parts of the state or from out of state; be sure to notify CDPHE if such a potential exists.
- In dealing with outbreaks or even a single infected employee in a foodhandling establishment that is a franchise, notify the franchise headquarters early in the course of the investigation.

Working with the media:
- Designate one individual to be the media contact person. All news media should be handled by that person. Obviously, this contact person needs to have the most current information on the local situation, such as the number of cases, and must be able to accurately answer more general questions about hepatitis A and PEP.
- Responding to each media call during an outbreak can take an inordinate amount of scarce time. To avoid this, consider holding a daily news conference or issuing daily updates to the media instead of responding to every media request for an individual phone interview.

Holding a public IG/vaccine administration clinic:
- Ensure your local or regional public health emergency preparedness and response staff are involved, as they have experience planning and conducting large scale prophylaxis clinics.
- Ensure that sufficient supplies of IG and hepatitis A vaccine, needles and syringes, alcohol swabs, consent forms, etc. are on hand for the clinic.
• Issuing a news release about a hepatitis A outbreak/exposure situation and offering a public clinic will result in a very large number of phone calls to the LPHA office. Consider routing calls about clinic hours, who needs PEP, etc., to CO-HELP. CDPHE can assist LPHAs in making arrangements to use CO-HELP.
• Choose a site for the public clinic carefully. Consider factors such as accessibility, size, comfort (an extended waiting period is not uncommon), and the need for privacy at the actual IG/vaccine administration stations.
• No one enjoys waiting in line. Even more annoying is a long wait at the clinic only to be later informed that one does not need PEP because one does not have the specific risk factors. Consider giving each client upon arrival:
  • a number which will be called when it is their turn,
  • a hepatitis A fact sheet,
  • the consent form for IG/vaccine administration, and
  • a sheet detailing the risk factors necessitating PEP administration (e.g., identifying the specific times, dates, and food items which would put a patron at risk from an infected foodhandler) and explaining that those who have previously been vaccinated against hepatitis A do not need PEP. This last item can not only reduce the inappropriate use of PEP, but informs the client immediately whether s/he is a candidate for prophylaxis.
• Delineate staff duties clearly prior to holding the clinic. In addition to the personnel performing the actual immunizations, specific staff persons should be assigned to control traffic flow at the entrance and at the immunization stations, pass out the information detailed above, call patient numbers, be the overall clinic coordinator and technical decision maker, and be the spokesperson for any media inquiries/interviews.
• It is usually beneficial to hold a next day debriefing or “hot wash” with clinic staff to discuss difficulties encountered during the clinic, and ways to improve the procedure in the future. A call to update CDPHE staff is appreciated.

APPENDICES
A1 Restaurant assessment worksheet
A2 Worksheet for tracking staff of food establishment
A3 Sample news release
A4 Consent form for receiving Immune Globulin (IG) and/or Hepatitis A Vaccine for protection against Hepatitis A
A5 Screening tool for PEP administration - patients
A6 Screening tool for PEP administration - providers
A7 Roles of local and state public health agencies, patients, and physicians
Appendix 1: Worksheet for Environmental Health Assessment of a Food Establishment at Which A Case of Hepatitis A has been Identified

{complete for each food establishment where a case has worked during incubation and infectious periods}

Establishment name and address:__________________________________________________

Manager/primary contact at this establishment Name __________________________

Phone__________________________

Case’s date of symptom onset ___/___/___

Does the case work a second or multiple jobs?    Y   N      If yes, specify what and where______________

______________________________________________________________________________

1. Attach complete employee roster to this worksheet. (Include employees who quit/were fired during the past 45 days.)

2. Attach the case’s exact work schedule for the 14 days prior to and for the 10 days after the case’s onset of jaundice. (Include any deviations from the routine schedule.)

3. Were any other employees ill with jaundice or symptoms compatible with hepatitis A during the past 45 days?   Y   N

4. How many patrons does this establishment serve during a typical week?  _______________

5. Was food that the case handled ever carried over into the next shift or next day?   Y   N

ASSESSMENT OF CASE’S HYGIENE

Interview supervisor and/or co-workers about the case’s hygiene, and ascertain:

a) Was this employee trained in proper handwashing techniques?       Y   N
(Ask manager to describe how they train employees in handwashing.)

b) Was employee ever reprimanded for inadequate personal hygiene?       Y   N

c) How often did employee use disposable gloves or utensils when handling ready-to-eat foods? (circle) Always Usually Occasionally Never

d) If gloves were worn, how often were they used in a sanitary manner? (circle) Always Usually Occasionally Never

e) Did employee wash hands regularly, or only when reminded to do so? ______________

f) How often did employee use the handwashing facilities in the food preparation area prior to handling food? (circle) Always Usually Occasionally Never
g) What is supervisor’s overall impression of the case’s hygiene?
   (circle)  Good  Adequate  Possibly inadequate  Clearly inadequate

ASSESSMENT OF HANDWASHING AND TOILET FACILITIES FOR EMPLOYEES
From direct inspection of the facility and interviews with staff, please ascertain:

a) Accessibility of handwashing facilities for foodhandlers  ___Adequate  ___Inadequate
b) Are there clearly labeled signs instructing employees to wash their hands?  Y  N
c) Availability of soap  
   ___Always present
   ___Usually present
   ___Occasionally present
   ___Never/nearly never present
d) Availability of toilet tissue  
   ___Always present
   ___Usually present
   ___Occasionally present
   ___Never/nearly never present
e) Hand-drying provisions  
   ___Single use disposable  ↔  Always available?  Y  N
   ___Single use cloth roll  ↔  Clean roll always present?  Y  N
   ___Multiple use cloth towel
   ___Hot Air dryer
   ___None
f) Faucet type in handwashing sink  
   ___Mixing valve or combination faucet
   ___Self-closing (metering) faucet
   ___Other (describe) ______________________

   If self-closing faucet is used, is it functioning properly (i.e. minimum 15-second flow)?  Y  N

Inspector’s overall impression of handwashing and toilet facilities  
   ___Good
   ___Adequate
   ___Possibly inadequate
   ___Clearly inadequate

Please note below any other factors which might have had an impact on case’s hygiene:

Name of EHS ____________________________________________

Date of Assessment ___/___/___
### Appendix 2: Sample Worksheet for Tracking Food Establishment Staff

**Name of establishment:** __________________________   **Address:** __________________________________________

**Contact Person:** __________________________   **Phone:** __________________________________________

**Number of meals served daily:**
- B ________  Days / hours of operation: __________
- L ________  Days / hours of operation: __________
- D ________  Days / hours of operation: __________

**Number of employees (including full-time, part-time, temporary / contract):** __________

Enter available information for all employees who worked at this establishment during the past two months.

<table>
<thead>
<tr>
<th>Name</th>
<th>Job Description</th>
<th>Date PEP rcvd</th>
<th>IG/vaccine?</th>
<th>Symptoms*</th>
</tr>
</thead>
<tbody>
<tr>
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<td>2</td>
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<td>12</td>
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</table>

* If symptoms compatible with hepatitis A, test serum for anti-HAV IgM
Appendix 3: Sample News Release

HEPATITIS A ALERT

FOR IMMEDIATE RELEASE
DATE: _________________

Today, the {name of public health agency} announced that a case of hepatitis A occurred in a food worker employed at {restaurant name and location}.

Health officials warn that people who ate {implicated risky food item(s)} at this restaurant between the dates of {dates and times when risk of transmission occurred} may be at risk for developing hepatitis A. People who ate these food item(s) on these dates should receive a shot of immune globulin or hepatitis A vaccine if their exposure occurred within the past 14 days. These people should contact their physician or their local public health agency immediately to receive the immunization. Exposed patrons may obtain the immunization through {local public health agency name} {provide place, date, and times for immunization clinics.} To prevent infection it is very important to receive the shot of immune globulin (also called gamma globulin) or hepatitis A vaccine within 14 days of exposure.

Illness from hepatitis A starts 2 to 6 weeks after exposure. Symptoms of hepatitis A include mild fever, loss of appetite, nausea, vomiting, diarrhea, tiredness, pain in the upper right side of the abdomen, dark urine, and jaundice (yellowness of eyes or skin).

Mild cases of hepatitis A illness can last two weeks or less. More severe cases can last 4 to 6 weeks or longer. Some individuals, especially children, may not develop jaundice, and may have an illness so mild that it can go unnoticed. However, even people with mild illness can be highly infectious. People who have been exposed and have symptoms that could be hepatitis A should consult a physician even if symptoms are mild.

Hepatitis A virus is spread as a result of fecal contamination (fecal → oral route) and may be spread from person to person through close contact or through food handling. The virus is commonly spread by contaminated food or beverages. Persons are at increased risk of acquiring hepatitis A when they have been in close and continuous contact with an infected individual, particularly in a household or day care setting.

People who ate {implicated risky food item(s)} at {name of restaurant} between {dates} are urged to be particularly thorough in handwashing after using the bathroom and before food preparation to avoid any potential for further spread of disease. They should not prepare or handle food for anyone outside of their immediate family. Handwashing should include vigorous washing of hands with soap and running water. All surfaces should be washed including the back of the hands, wrists, between fingers and under fingernails.
Appendix 4: Consent Form for Receiving Immune Globulin (IG) and/or Hepatitis A Vaccine for Protection against Hepatitis A

Please read the following important information carefully.

Hepatitis A
This disease, formerly known as infectious hepatitis, is an infection of the liver caused by the hepatitis A virus. It is spread from person to person, often by food or water contaminated by a person with the disease, if that person does not thoroughly wash hands after using the toilet (after defecation).

Hepatitis A typically has an abrupt onset, with fever, fatigue, lack of appetite, and abdominal discomfort, followed in some cases by jaundice (characterized by dark urine and yellowing of the skin and whites of the eyes). The severity of the disease can vary from mild illness lasting a week or two to more severe disease lasting for months. Some cases never develop jaundice. Nearly all cases develop lifelong immunity to future hepatitis A infections. The only way to know if you definitely have hepatitis A is with a blood test to detect antibodies to the virus.

Receiving an injection of immune globulin (also called IG) within 14 days after exposure to a case of hepatitis A provides temporary immunity to the disease in most people. Receiving hepatitis A vaccine within 14 days after exposure to a case of hepatitis A can prevent illness from the exposure and can provide long lasting immunity to the virus. Exposure to a case of hepatitis A is defined as 1) household contact; 2) slept in same bed with the case; 3) ate food which was handled by the case and not subsequently cooked; 4) sustained close contact with a case.

What is IG?
IG is a sterile solution of antibodies prepared from human plasma. When IG is administered prior to, or within 14 days of, exposure to the hepatitis A virus, it is approximately 80-90 percent effective in preventing illness. IG given longer than 14 days after exposure is unlikely to prevent the disease. IG contains thimerosal, a mercurial preservative.

What is Hepatitis A Vaccine?
Hepatitis A vaccine is a highly effective inactivated vaccine, prepared by methods similar to those used for inactivated poliovirus vaccine. Two doses given 6 to 12 months apart provide long lasting (up to 20 years or more) immunity. Hepatitis A vaccine contains alum, and one brand contains 2-phenoxyethanol.

(over)

RECIPIENT: Please detach along dotted line and keep the upper portion for reference.

I have read or have had explained to me the information on this form about hepatitis A, immune globulin and hepatitis A vaccine. I have had a chance to ask questions which were answered to my satisfaction. I believe I understand the benefits and risks of IG and hepatitis A vaccine and ask that I, or the person named below for whom I am authorized to sign, receive it in the recommended amount.

<table>
<thead>
<tr>
<th>Name of person receiving IG and/or vaccine</th>
<th>Date of birth (mm/dd/yyyy)</th>
<th>Age</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Address</th>
<th>City, State</th>
<th>Zip</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Signature of person receiving injection(s) or authorized to sign</th>
<th>Date (mm/dd/yyyy)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
There is no evidence that hepatitis B virus, hepatitis C, HIV, or any other viruses have been transmitted by intramuscular IG or hepatitis A vaccine commercially manufactured in the United States. Only blood that tests negative for hepatitis B and C viruses and the HIV virus is used in the preparation of IG, and the preparation process removes any HIV activity from the IG. Hepatitis A vaccine is not produced from blood products.

Possible Side Effects from IG and hepatitis A vaccine
Serious adverse effects from properly administered IG and vaccine are rare. The most common problem encountered is discomfort and pain at the injection site. Less common reactions include flushing, headache, chills and nausea. Rarely anaphylactic reactions have occurred following IG injection. This is more common if IG is given intravenously; therefore IG for hepatitis A prevention must be given intramuscularly.

Precautions and Contraindications
No one receiving IG should receive any live virus vaccine injection such as measles, mumps and rubella vaccine for approximately 3 months after IG administration. If someone has received such a vaccine within the past 14 days and now requires IG, revaccination may be required, and their personal physician should be consulted. Data indicate that IG does not interfere with the immune response to either polio vaccine or yellow fever vaccine. Receipt of IG will not affect the results of subsequent blood tests for hepatitis A.

IG and vaccine should not be given to anyone with a coagulation disorder that contraindicates intramuscular injections. IG should not be given to anyone with a known IgA deficiency.

If needed to prevent hepatitis A infection, neither IG nor vaccine are contraindicated for pregnant women. There is no reported risk to the fetus from IG or hepatitis A vaccine, whereas infection with the hepatitis A virus has been associated with increased risk of abortion, premature birth, and severity of disease for women in the third trimester of pregnancy.

If you have questions about your need for IG or vaccine, as a result of exposure to a case of hepatitis A, or about either IG or vaccine itself, please contact your physician, your local health department, or the Colorado Department of Public Health & Environment.

---

**RECIPIENT:** Please detach along dotted line and keep the upper portion for reference.

For office use only:

<table>
<thead>
<tr>
<th>Name of person administering IG and/or vaccine</th>
<th>Date administered</th>
</tr>
</thead>
<tbody>
<tr>
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<table>
<thead>
<tr>
<th>Clinic site</th>
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<tbody>
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<td></td>
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</table>

<table>
<thead>
<tr>
<th>IG Manufacturer</th>
<th>Lot number</th>
<th>Injection site</th>
</tr>
</thead>
<tbody>
<tr>
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<td></td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Hepatitis A vaccine Manufacturer</th>
<th>Lot number</th>
<th>Injection site</th>
</tr>
</thead>
<tbody>
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</tbody>
</table>
Appendix 5: Screening Tool for Hepatitis A Post-Exposure Prophylaxis (PEP) following Potential Exposure to [enter as applicable].

<table>
<thead>
<tr>
<th>TO BE FILLED IN BY CLINIC ATTENDEE/PATIENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name:</td>
</tr>
<tr>
<td>Date of Birth:</td>
</tr>
<tr>
<td>Age:</td>
</tr>
<tr>
<td>Sex:</td>
</tr>
<tr>
<td>Address:</td>
</tr>
<tr>
<td>City:</td>
</tr>
<tr>
<td>State:</td>
</tr>
<tr>
<td>Zip:</td>
</tr>
<tr>
<td>Phone (home):</td>
</tr>
<tr>
<td>Phone (cell):</td>
</tr>
<tr>
<td>Allergies:</td>
</tr>
<tr>
<td>Where did you hear about this issue?</td>
</tr>
<tr>
<td>TV</td>
</tr>
<tr>
<td>Radio</td>
</tr>
<tr>
<td>Internet</td>
</tr>
<tr>
<td>Newspaper</td>
</tr>
<tr>
<td>Other:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Screening Questions</th>
<th>Response</th>
<th>Advice</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Are you pregnant?</td>
<td>No</td>
<td>If yes, there are no contraindications to prophylaxis for pregnancy. If you’re concerned, you should speak with your healthcare provider before getting prophylaxis.</td>
</tr>
<tr>
<td>2. Are you ill right now?</td>
<td>No</td>
<td>If yes, you should speak with your health care provider before getting prophylaxis</td>
</tr>
<tr>
<td>3. Have you ever had a severe reaction to a previous dose of IG? (e.g., difficulty breathing, “throat closing up,” need for immediate medical intervention)</td>
<td>No</td>
<td>If yes, you should speak with your health care provider before getting IG.</td>
</tr>
<tr>
<td>4. Have you ever had a severe reaction to a previous dose of hepatitis A vaccine?</td>
<td>No</td>
<td>If yes, you should speak with your health care provider before getting hepatitis A vaccine.</td>
</tr>
<tr>
<td>5. Have you ever had a severe reaction to latex?</td>
<td>No</td>
<td>If yes, talk to your health care provider before getting prophylaxis. If you have only a contact or other non-serious allergy to latex, you can receive prophylaxis.</td>
</tr>
<tr>
<td>6. Have you ever had a severe reaction to neomycin, formalin, aluminum, or phenoxyethanol?</td>
<td>No</td>
<td>If yes, you should talk to your health care provider before getting prophylaxis</td>
</tr>
<tr>
<td>7. Have you ever had a reaction related to anti-IgA antibodies, or history of IgA deficiency?</td>
<td>No</td>
<td>If yes, you should talk to your health care provider before receiving IG.</td>
</tr>
<tr>
<td>8. Do you have a bleeding disorder or take any prescriptions blood thinner?</td>
<td>No</td>
<td>If yes, you should talk to your health care provider before getting IG.</td>
</tr>
<tr>
<td>9. Have you been diagnosed with a chronic liver disease or an immune system problem, or do you take drugs that suppress your immune system?</td>
<td>No</td>
<td>If yes, you will need to receive IG instead of vaccine</td>
</tr>
<tr>
<td>10. Have you received measles, mumps, rubella vaccine (MMR) and/or varicella in the last 2 weeks?</td>
<td>No</td>
<td>If yes, patients who got measles or varicella vaccine WITHIN 2 weeks of IG dose should have that dose repeated 3 months later or talk to your health care provider. You should not receive measles or varicella vaccine for 3 months following IG administration. IG does not affect shingles (zoster) vaccine.</td>
</tr>
</tbody>
</table>

I have read or have had explained to me the information on the consent form about hepatitis, immune globulin (IG) and hepatitis A vaccine. I have had a chance to ask questions which were answered to my satisfaction. I believe I understand the benefits and risks of IG and hepatitis A vaccine and ask that I or the person named below for whom I am authorized to sign, receive it in the recommended amount.

Signature of person receiving injection(s) or authorized to sign  
Date (mm/dd/yyyy)
Appendix 6: Screening Tool for Hepatitis A Post-Exposure Prophylaxis (PEP) following Exposure to [food or establishment details, as applicable]

<table>
<thead>
<tr>
<th>TO BE COMPLETED BY MEDICAL OFFICE / PUBLIC HEALTH SCREENING STAFF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name:</td>
</tr>
<tr>
<td>Date of Birth: Age: Sex:</td>
</tr>
<tr>
<td>Address:</td>
</tr>
<tr>
<td>City: State: Zip: Phone (home): Phone (cell):</td>
</tr>
</tbody>
</table>

**Exposure:**
Did you eat any of the products listed above?  
- If yes: Did you eat any of them in the last 14 days?  
  - Yes  
  - No  
  - Not sure

If person consumed a product but not within the past 14 days, s/he will not be eligible for PEP. Counsel person on symptoms of hepatitis A and ask to contact provider if they develop symptoms. Discontinue screening and do not administer PEP.

**Immunity:**
Have you ever been diagnosed with hepatitis A?  
  - Yes  
  - No  
  - Not sure
Have you ever received the hepatitis A vaccine?  
  - Yes  
  - No  
  - Not sure
Have you received an immune globulin (IG or gamma globulin) shot in the last 3 months?  
  - Yes  
  - No  
  - Not sure

If person said “yes” to any of the above immunity questions, s/he will NOT need PEP. A previous history of hepatitis A diagnosis or hepatitis A vaccination (at least one dose of hepatitis A vaccine, at least one month before exposure, is considered protected against hepatitis A). Discontinue screening and do not administer PEP.

**Recent illness:**
During the past two months, have you had  
- Dark urine (like tea or cola)?  
- Yellow skin or eyes?  
  - Yes  
  - No  
  - Not sure

If person said yes to these symptoms questions, s/he should be evaluated by health care provider to determine if he possibly has hepatitis A before administering prophylaxis. If jaundice and/or dark urine, consider ordering liver function panel and acute hepatitis panel (including hepatitis A IgM). Suspect Hepatitis A cases should be reported to CDPHE (303-692-2700) or local public health within 24-hours. Suspect Hepatitis A cases should be counseled to stay home from work if they work in high risk occupations (food service, healthcare, or childcare) and not prepare food for anyone.

**Eligibility for prophylaxis:** A person is eligible for PEP (vaccine or IG as appropriate) if all of the following criteria are met:  
- The person ate one of the products listed above.  
- The person ate the product within the last 14 days.  
- The person does not have a previous history of hepatitis A diagnosis or hepatitis A vaccination. At least one dose of hepatitis A vaccine, at least one month before exposure, is considered protected against hepatitis A.  
- The person has not had jaundice (yellow skin or eyes) or dark urine (like tea or cola) within the last two months.

- Eligible for prophylaxis?  
  - Yes  
  - No

If eligible for prophylaxis, administer one dose of single antigen hepatitis A vaccine (NOT Twinrix) to persons 12 months of age to 40 years of age. Pregnant or breastfeeding women can receive vaccine. IG should be reserved for the following persons: under 12 months of age; older than 40 years; diagnosed with severe or chronic liver disease; severely immune compromised; or has other contraindications to receiving vaccine.

**Prophylaxis given:**  
- Yes  
- No

- If yes, type given:  
  - IG [Patient Weight: ___________ Dose: ___________]  
  - adult vaccine  
  - pediatric vaccine

**Date given:**  
**Injection Site:**  
**Lot Number:**  
**Administered by:**  
**Clinic Name:**  
**Clinic location:**  
**Clinic/provider phone:**

PLEASE FAX COMPLETED FORM TO CDPHE AT 303-782-0338 FOR DATA COLLECTION.
Appendix 7: Hepatitis A Prevention and Control: Roles and Expectations

LOCAL PUBLIC HEALTH AGENCY
The role of the LPHA includes surveillance for hepatitis A disease patterns within its jurisdiction, conducting investigations whenever appropriate, providing preventive services to limit the spread of disease, and education of appropriate individuals within its service area about transmission and prevention of hepatitis A.

Program Management:
- Maintain a local surveillance system that includes early reporting of potential outbreak situations and of suspect or confirmed cases to the LPHA, and subsequent reporting by the LPHA to CDPHE.
- Notify appropriate LPHAs, hospital EDs, clinics, and infection control practitioners of public HAV exposure situations and outbreaks.
- Provide primary and secondary preventive services to limit transmission of HAV.
- Ensure that appropriate exposed populations receive appropriate and timely public health interventions.
- Ensure that a sufficient supply of materials (needles and syringes, alcohol swabs, forms, etc.) are on hand for any clinic which may need to be held.
- Notify CDPHE of potential for exposure of groups of people from other parts of the state or out of state.
- Provide consultation to various health care providers in the community to assure implementation of recommended standards.
- Provide consultation to others in the community as appropriate.

Case Management:
- Collaborate with CDPHE regarding case management of diagnosed hepatitis A; provide consultation locally.
- Provide referral and case management for exposed groups of people. Assure that CDPHE/CDC standards are met.
- Provide immune globulin and hepatitis A vaccine to exposed individuals as indicated per guidelines in this handbook.
- Consult with CDPHE when behavior of confirmed cases places others at high risk.
- Communicate with physician and CDPHE regarding client status and progress as appropriate.
- Maintain tracking system for cases and exposed groups of people.

Education:
- Collaborate with local providers in defining respective roles and responsibilities.
- Provide education and training locally to assure ongoing implementation of recommended hepatitis A control procedures.
- Disseminate appropriate information to the community and local health care providers.
- Send copies of all news releases to CDPHE prior to notification of the media.

COLORADO DEPARTMENT OF PUBLIC HEALTH & ENVIRONMENT
The role of the CDPHE includes surveillance of hepatitis A outbreaks/disease patterns on a statewide basis, consultation with LPHAs in the management of complex investigations/cases, and providing information with regard to current recommendations/guidelines.

Program Management:
- Collect, analyze and disseminate data pertaining to incidence, prevalence, cases and populations at risk.
- Provide consultation regarding hepatitis A control, outbreak investigations, cases and contact follow up.
- Provide direction to assure outreach for exposed populations at risk for hepatitis A disease.
- Ensure a sufficient supply of IG and/or vaccine for outbreak situations.
- Submit appropriate reports to CDC.
Case management:
- Provide consultation to LPHAs and health care providers regarding management of confirmed hepatitis A disease.
- Provide LPHAs with immune globulin and/or vaccine, per guidelines.
- Provide laboratory services.
- Provide support to LPHAs in unusual situations.
- Work with other states and the CDC as necessary.

Education:
- Review/recommend media, news releases in outbreak situations.
- Provide education sessions and other resources to LPHAs as necessary to assure state-of-the-art programs and services.
- Provide current information on the state hepatitis A program to key health care providers, e.g., LPHAs, physicians, infection control and laboratory personnel.
- Provide CDPHE/CDC literature to the LPHA for distribution to local health care providers.
- Collaborate with LPHAs, private physicians, and laboratories in defining respective roles/responsibilities.

INDIVIDUAL HEPATITIS A CASE-PATIENT
The role of the individual case-patient consists of cooperation in investigations conducted by the LPHA.

Contact Investigations:
- Cooperate with case investigator in assessing the probable source of HAV exposure.
- Assist the LPHA by identifying/communicating with contacts who may be at risk of HAV infection, and by being forthcoming regarding activities which may have facilitated HAV transmission.

Self Care:
- Maintain practices which protect others from potential infection.
- Adhere to any temporary restrictions imposed by the LPHA.

PRIVATE PHYSICIAN
The role of the private physician includes cooperation with the LPHA regarding hepatitis A surveillance, and in this way, limiting the spread of HAV infection within the community.

Community Infection Control:
- Report hepatitis A cases and suspect cases to the LPHA within 24 hours, and notify the LPHA if patient is in a high risk setting for HAV transmission.
- Confirm the hepatitis A diagnosis.
- Provide results of lab tests, including liver enzyme values, to the LPHA.
- Maintain high index of suspicion with regard to exposed patients, whether symptomatic or not.

Case Management:
- Provide medical management for the person diagnosed with hepatitis A disease.
- Participate with the patient and the LPHA in the prevention of hepatitis A in exposed populations. This would include vaccine and/or IG (if available) administration to close contacts of cases within the context of a physician-patient relationship.
REFERENCES


