PUBLIC HEALTH HANDBOOK FOR MANAGEMENT OF ACUTE HEPATITIS A

Communicable Disease Epidemiology Program
4300 Cherry Creek Drive South
Denver, Colorado 80246-1530
Phone: 303-692-2700 FAX: 303-782-0338

Revised December 2007

TABLE OF CONTENTS

TABLE OF CONTENTS (continued)

INTRODUCTION TO 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. 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.

The handbook is organized into sections on diagnosis, day care settings, food handlers, and other topics. Frequently used abbreviations in the text are as follows: HAV = hepatitis A virus; LHA = local health agency; IG = immune globulin; 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:

(1) the basic hepatitis A questionnaire (appendix A1) which should be administered to ***ALL HEPATITIS A PATIENTS;***

(2) the supplemental questionnaire for individuals in ***HIGH RISK OCCUPATIONS OR SETTINGS*** (appendix A2); and

(3) the worksheet for ***INSPECTION OF FOOD ESTABLISHMENTS*** at which a hepatitis A case has been identified (appendix A3).

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 hepatitis A questionnaire (appendix A1) data 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 disease is acquired by ingesting the virus. Virus particles are shed in the stool of infected individuals (fecal⇒oral transmission). Spread of the virus is promoted by poor personal hygiene, especially poor handwashing, and overcrowding. Cases are most often linked by close personal contact within a family or institution, and less often via contaminated food and water. Very small numbers of HAV can produce infection, thus the disease is highly infectious. Infection with HAV confers lifelong immunity. There is no chronic carrier state for hepatitis A, nor does it cause chronic liver disease, *however, 10-15% 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 between 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 7 to 10 days 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 day care are discussed below for various situations.

Laboratory Diagnosis

Serology: Confirmation of acute 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). **Therefore, the presence of IgM is usually associated with active or recent HAV infection.** 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. Nonetheless, **every reported positive anti-HAV should be carefully evaluated by public health.**

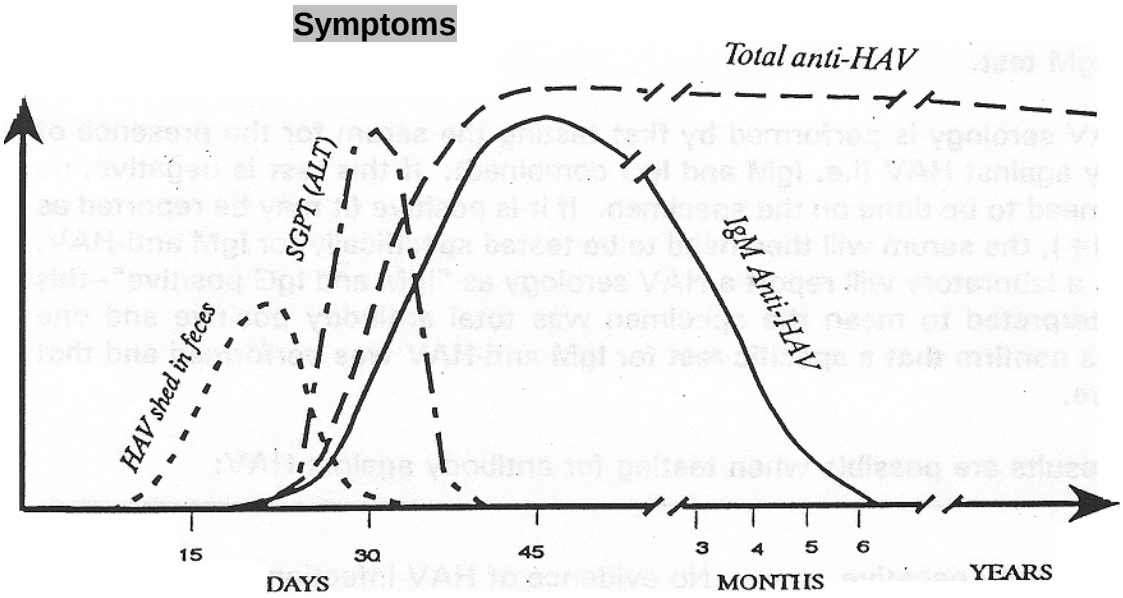
Typically, HAV serology is performed by first testing the serum for the presence of total antibody against HAV (i.e. IgM and IgG combined). If this test is negative, no further tests need to be done on the specimen. If it is positive (it may be reported as HAV IgG/IgM+), the serum will then need to be 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:

Serology result	Interpretation
Total antibody negative (IgG- IgM-)	No evidence of infection
Total antibody positive and IgM negative (IgG+, IgM-)	Prior infection with HAV (possibly years ago); currently immune, not an active case of hepatitis A, not infectious
Total antibody positive and IgM positive (IgG+, IgM+)	Recent infection; a new case of hepatitis A

*** In order to have a confirmed case of hepatitis A, the patient must be IgM anti-HAV positive.***

In most laboratories, both 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 health agency telephone the laboratory to request expedited processing and telephone or fax communication of results. *The laboratory may run the IgM test concurrently with the total antibody test and reduce the turnaround time*.



Time after HAV infection

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. Elevations in ALT will occur even in patients who are not symptomatic.

Levels of ALT can sometime 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.

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 symptoms, **and** jaundice or elevated serum aminotransferase levels (AST and ALT)

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

Confirmed case:

1. A case that meets the clinical case definition **and** is laboratory confirmed, or
2. 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 statute and 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.

Most cases of hepatitis A are reported to CDPHE as preliminary laboratory reports. 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 report stating “Hepatitis A virus (HAV) total antibody positive” is received from a laboratory, CDPHE staff:

1. Contact the physician’s office to inquire:
    a. If IgM test has been ordered and when IgM results will be complete
    b. Whether patient has signs and symptoms consistent with hepatitis A (jaundice, fever, malaise, dark urine, etc) or elevated liver function tests (LFTs)
2. If the patient has symptoms consistent with hepatitis A or elevated LFTs, enter case into CEDRS as a suspect case; when IgM results become available, the case will either be changed to a confirmed case or will be deleted
3. Contact the local health agency where the case resides and inform them of the suspect case of hepatitis A

When a laboratory report stating “HAV IgM positive” is received from a laboratory CDPHE staff:

1. Contact physician’s office for necessary demographic information, symptom history, and LFT results
2. Enter the case into CEDRS as a confirmed case if patient meets CDC case definition (acute illness consistent with hepatitis A *and* HAV IgM positive)
3. Contact local health agency where the case resides to report confirmed case of hepatitis A

Hepatitis A cases are also reported by infection control practitioners and by local 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 physician for additional information and notify the local health agency of the case.

SUBMISSION OF SERUM TO THE CDPHE LABORATORY FOR IgM TESTING

Except in outbreak situations, it is rare for the state laboratory to perform diagnostic testing for hepatitis A, however, situations occasionally arise in which hepatitis A testing by the CDPHE laboratory is warranted.

<u>Recommendations for Specimen Handling and Submission</u>

1. Please call to advise the Serology lab at the State Public Health Laboratory (303-692-3485), or the Communicable Disease Epidemiology Program of the Disease Control & Environmental Epidemiology Division (303-692-2700) that you would like to send HAV specimens for testing.
2. Draw one red top tube; use good specimen collection technique to avoid hemolysis. Submit the serum specimen to CDPHE lab along with a lab slip requesting HAV-IgM.

POST-EXPOSURE PROPHYLAXIS (PEP)

In summer 2007, the ACIP issued new recommendations about hepatitis A post-exposure prophylaxis (PEP) that include use of either hepatitis A vaccine or immunoglobulin, depending on the age and medical history of the exposed person who require PEP. The circumstances under which a person is consider exposed have not changed and are outlined starting on page 19.

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 recently have been exposed to HAV and who previously have not received hepatitis A vaccine 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.
- 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 also is 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.

<u>CDPHE Policy for Supplying PEP Medication (IG or hepatitis A vaccine):</u>
CDPHE supplies medication for PEP to LHA's **for use in exposure situations which potentially impact the public's health** (e.g. prophylaxis of restaurant employees/patrons, day care staff/attendees, etc.)

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

days of exposure and who:

1. Attend/live/work in a setting with a high risk of transmission to the public or
2. Are indigent and cannot afford to obtain it through a physician or
3. 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 the may have been exposed to hepatitis A but who do not meet exposure criteria outlined below.

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 80-90% 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.*** This was even true for lots prepared before 1985, prior to when screening of donor plasma for HIV was initiated.

Dosage and Administration

IG is administered intramuscularly (IM), usually in the gluteal muscle[1]. 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. The 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.

[1] For children <24 months of age, IG can be administered in the anterolateral thigh muscle.

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 either 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 (LHA) should be asked to sign a consent form. A sample consent/information form for IG recipients is supplied in appendix A7. Recipients should be cautioned that IG is only 80 to 90% 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.

<u>How IG is Supplied/ How to Obtain</u>
IG is available in single dose vials. LHA's may obtain IG from the CDPHE Communicable Disease Program for use in accordance with CDPHE guidelines outlined below. Phone requests can be made to the Communicable Disease Epidemiology Program at (303) 692-2626 (or 2627 or 2659). 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.

CDPHE will ship IG *via Federal Express* on Monday through Thursday. Delivery generally takes one day. When necessary, same day or weekend shipments can be sent via Greyhound, although this route is more costly and labor intensive. If a relatively small amount of IG is needed immediately, consider borrowing it from an adjacent LHA, and then replenishing the supply when more IG arrives from CDPHE.

Because IG is relatively costly and has a finite shelf life, the CDPHE *only sends small amounts of IG* to LHA's for the purpose of having a supply on hand. Any LHA with IG on hand which is close to expiration is asked to return the IG so we can distribute it to another LHA for immediate use.

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.

Hepatitis A vaccine is also addressed in the Colorado Immunization Manual at: http://www.cdphe.state.co.us/dc/Immunization/immunmanual/immunmanual.html (Section 8, page 31).

Use of Hepatitis A Vaccine

Hepatitis A vaccine has been used for over a decade to prevent infection when given *prior to* exposure to hepatitis A virus. It has recently 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 *35.6 F (2 C) - 46.4 F (8 C)* during storage *and shipping.*

Dosage and Administration

Hepatitis A vaccine is administered intramuscularly (IM) in the deltoid muscle. Both manufacturers provide vaccines in pediatric (>1 year of age) and adult formulations, and 2 doses in the recommended time frame, and will confer maximum immunity.

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

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

Adverse Reactions and Precautions

The most frequent 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 LHAs by the CDPHE Immunization Program. Contact Rudy Balquin at 303-692-2334 for questions.

The CDPHE Viral Hepatitis Program supplies adult hepatitis A vaccine to providers that serve uninsured and underinsured high-risk adults. To learn more about the program, go to: http://www.cdphe.state.co.us/dc/Hepatitis/index.html.

Post-exposure prophylaxis (PEP)

In situations where hepatitis A vaccine is indicated for PEP, LHA's 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, LHA's may administer pediatric or adult formulation of hepatitis A vaccine, as appropriate, to exposed persons using CDPHE-supplied vaccine.

As with other CDPHE-supplied vaccine, LHA's may not charge patients for the vaccine. When vaccine is administered for PEP, LHA's should do the following:

- Enter the number of doses of pediatric and/or adult vaccine into the index-patient's CEDRS record on the extended record tab
- Send an email to Alicia Cronquist (Alicia.cronquist@state.co.us) to inform her of the number of doses of each formulation provided (this is only a temporary measure until we determine if recording administration in CEDRS allows us to adequately track vaccine use).
- When re-ordering adult vaccine with the Immunization Program or Viral Hepatitis Program, indicate the number of doses administered for PEP purposes.

PART 2 -- PUBLIC HEALTH INTERVENTIONS

RESPONSE TO A SUSPECTED CASE OF HEPATITIS A

In Colorado, physicians, health care providers, and hospitals are required by statute and 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.

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 entity. **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).** However, there are measures that can be taken even before a reported case is serologically confirmed. These measures primarily include early information gathering, and are especially important when the suspect case has a high potential for transmitting HAV to others.

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

1. Obtain the patient's liver enzyme test results from the attending physician.
2. Interview the patient to determine risk factors for Hepatitis A acquisition, exactly what signs/symptoms were experienced, and when onset of these symptoms occurred.
3. Determine the patient's occupation as well as the identity and occupation of other members of the household. If a person has been clinically diagnosed with hepatitis A, consider excluding that individual from work/school/day care while serologic results are pending. Suspect cases in high-risk settings are discussed below. Individuals symptomatic with diarrhea should be excluded even if they do not work in a high-risk setting.
4. Ascertain if the suspect 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.)
5. Educate the potential case regarding hepatitis A and ways to avoid transmission. The hepatitis A fact sheet may be useful for this purpose (see appendix A6).

The hepatitis A questionnaire in appendix A1 should be used to gather the above information. Patients can be difficult to contact, so it is important to be thorough during the first interview.

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, hospitals, and institutions for the developmentally disabled. Other settings may be considered high

risk if circumstances exist which favor HAV transmission.

If the suspect case occurs in a high-risk setting, the LHA should:

1. Exclude the suspected case from the high risk setting immediately.
2. Efforts should be made to expedite the serologic results. A delay of more than a few days to confirm the diagnosis of hepatitis A in a high risk individual is not acceptable. Liver enzyme levels can be used as a temporary surrogate until serologic results are obtained.
3. If hepatitis A is strongly suspected, some basic information about the high risk setting can be gathered such as exact work duties and days/shifts worked by the patient. A questionnaire for high-risk individuals is included in appendix A2.
3. If the suspect case works as a foodhandler, a sanitarian can inspect the workplace and an assessment can be made of the *case-patient's* hygiene.

RESPONSE TO A CONFIRMED CASE OF HEPATITIS A

General: The LHA 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". Once it is established that the case is serologically confirmed, **all of the recommendations described above for suspect cases should be implemented** if these measures have not yet been taken (i.e. administer the hepatitis A questionnaire(s), patient education, job exclusions as discussed later in this manual). Recommendations for post-exposure prophylaxis (PEP) of family members and other close contacts should be made by the LHA at this time. If the patient interview reveals close contacts who are in high-risk settings, measures should be considered to minimize the danger that these contacts might pose if they later develop hepatitis A.

It is important to use the hepatitis A questionnaire contained in appendix A1 to gather thorough information during the first interview with the patient. It should be noted that this questionnaire is intended to assist the LHA in collecting information necessary to:

1. make prudent decisions about which contacts of a case may be at risk of developing HAV infection; and
2. draw conclusions about a patient's HAV infection source, which can be extremely helpful in the early identification of a common source outbreak.

The Hepatitis A questionnaire is also used to collect demographic and risk factor data necessary for compete reporting. **When the hepatitis A questionnaire has been competed, the LHA should:**

1. complete the CEDRS record, including the hepatitis A extended tab, or
2. fax completed questionnaires (appendix A1) to CDPHE at 303-782-0338 so that CDPHE may enter the necessary data

Determining the Source of Exposure: 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). Therefore, the time period on which to focus most closely in interviews is approximately 3 to 6 weeks prior to illness onset. The hepatitis A questionnaire (appendix A1) contains several questions specifically 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 day 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 individual can then be performed if necessary.

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) is probably 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.

It is essential to collect food histories in an unbiased fashion. In a potential outbreak situation, the initial 10 to 20 case patients should be asked open-ended questions about their food histories such as those contained in the hepatitis A questionnaire, and they should be encouraged to be as thorough as possible. 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

Once it has been established that the patient does not live in, attend, or work in a high-risk setting, LHA intervention efforts should focus on two goals:

1. Determining the patient's source of HAV.
2. Minimizing the chances of further transmission among the patient's contacts. This is accomplished by:
   a. Educating the patient about hepatitis A and the crucial importance of personal hygiene to prevent transmission. The hepatitis A fact sheet is useful here (see appendix A6).
      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.
   b. Making 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 illicit drugs with a confirmed case; and, possibly, other persons with ongoing, close personal contact (e.g. regular babysitters) with a confirmed case.

PREVENTING FURTHER HAV TRANSMISSION -- HIGH RISK SETTINGS

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 serologic results confirm that a food handler is IgM positive, the following eight steps should be taken:

1. A food handler with confirmed hepatitis A should be **excluded from work according to these guidelines:**
   a. for the interval extending through day 10 following onset of jaundice.
   b. for the interval extending through day 14 following onset of symptoms if s/he does not develop jaundice.
   c. Individuals who are asymptomatic but are IgM antibody positive should be excluded from work for the interval extending through day 14 following the date of their positive laboratory result. However, if ALT (SGPT) levels are known to be normal, that person may safely return to work.

2. A local public health official, usually the local or regional sanitarian, should **inspect the food establishment**. The inspection 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 inspection and staff are contained in appendices A3 and A4.)

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 the hepatitis A fact sheet. The importance of employees being excluded from food/beverage handling when ill must be stressed. 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 LHA.

3. LHA staff should obtain a very **careful history** of which days and shifts the case worked, exact duties, types of food handled, any use of disposable gloves, as well as an assessment of the employee's hygiene. (See the supplemental questionnaire for high-risk occupations in appendix A2 and the worksheet for food establishment inspection in appendix A3.) 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). Both the case and his/her supervisor, as well as some co-workers may need to be interviewed about these points. Ascertain whether the case-employee is working another high-risk job. Ask the patient whether s/he worked while symptomatic with diarrhea; if so, note the dates on which this occurred.

4. **PEP (IG or hepatitis A vaccine) is recommended for all foodhandlers** at the establishment. At the time of PEP administration, employees can be questioned individually about a past or present history of illness compatible with hepatitis A; if they have recently experienced such symptoms, submit a serum specimen on these employees.

   A sample worksheet designed to keep track of food establishment staff is contained in appendix A4.

5. The food establishment **employees should be educated** about the disease (symptoms, mode of transmission, prevention). Provide the employees with HAV Fact Sheets.
   a. 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.
   b. Teach the employees that PEP does not guarantee they will not develop hepatitis A.
   c. Stress the importance of employees not working if they feel ill, and of

notification of the LHA contact person if they develop signs or symptoms compatible with hepatitis A.

d. Strongly consider requiring the use of disposable gloves by employees handling cold foods for a period of 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*.

Employees should be educated 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 rest room or whenever gloves have been used to touch items other than food or clean utensils used to directly prepare food.

6. **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.

7. 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 contact the LHA 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.

8. A local health inspector should 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.

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

Whenever a case of hepatitis A occurs in a foodhandler, a determination should be made 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 the following three conditions are met (see MMWR 1999;48 (No.RR-12).

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)
   - personal recall of handwashing facilities (color of soap, hot/cold water availability, location of towel dispenser, etc.)
   - availability of toilet paper, disposable towels, soap and water in rest room facilities
   - 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 certain 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 LHA 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. Notification of major medical providers in the area by the LHA is usually necessary to ensure that physicians have adequate information to manage patient care and respond appropriately to patient inquiries.

For a typical situation involving a food handler who is judged likely to have transmitted HAV to patrons, 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 A5.

Management of foodhandlers who are contacts of known cases:
See general discussion of case-contacts who work in high-risk occupations (page 31)

Response to a Confirmed Case in a Child Day Care Setting

Child day 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 still in diapers. Whenever a case of hepatitis A in a child day care attendee or provider is reported, one's 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 LHA. *[Some of the following recommendations were adapted from the "Red Book" Report of the Committee on Infectious Disease of the American Academy of Pediatrics, 2006 edition.]*

1. A child day care attendee or provider with confirmed hepatitis A should be **excluded from the CCF according to these guidelines:**

    a. For a period extending through day 7 following onset of jaundice
    b. For a period extending through day 14 following onset of symptoms if s/he does not develop jaundice
    c. Individuals who are asymptomatic but are IgM antibody positive should 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.
    d. **If all child day 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 day care facility while symptomatic with diarrhea and if the case is toilet trained.

3. Visit, or otherwise become familiar with, the CCF to determine:

    a. The number of attendees and staff
    b. Age of attendees
    c. Whether attendees of different age groups are cohorted and whether staff members "float" between rooms and age groups; note presence of diapered children within cohorts
    d. The physical layout of the child day 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; disinfection of changing tables; availability of nailbrushes, soap and disposable towels at staff handwashing sinks; etc.)
    e. 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 day care staff** regarding hepatitis A (symptoms, modes of transmission, prevention). Provide them with HAV Fact Sheets.

   a. Stress the importance of thorough **handwashing** as the most effective measure in preventing transmission of HAV, both in the CCF and at home.
   b. 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 a 1:16 solution of household bleach (1 cup bleach to 1 gallon water), and then rinsed with water.
   c. Set up mechanism with the child day care provider for recognition and **prompt reporting** of any new suspect hepatitis A cases to the LHA.

5. The LHA should consider **post-exposure prophylaxis** *(IG and/or hepatitis A vaccination, if appropriate*) of staff/attendees according to the following general guidelines.

   a. <u>When a case occurs in an **enrolled child:**</u>

      (1) ***For day 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 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 3 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.

b. When a case occurs in a **day care provider:**

Determine if the case-employee has a known source for his/her infection that is not connected with the day care setting (e.g. spouse diagnosed with hepatitis A five weeks previously).

(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 day 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 the HAV Fact Sheet. Ask parents to inform the LHA if other family members are ill or develop illness compatible with hepatitis A.

7. **Management of child day care attendees who are contacts of known cases**: It may be reasonable to exclude a 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.

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.

In general, students with hepatitis A should be excluded from school through the 7th day following onset of jaundice or through the 14th day following onset of symptoms if s/he does not develop jaundice (same as for child day care settings). If this exclusion period is burdensome for a case-patient in this setting, the LHA 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 day care centers. 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.

Head Start Programs

Cases of Hepatitis A in Head Start Programs should be handled as described above for child day care settings.

Response to a Confirmed Case in an Institutional Setting

Hospitals

Hepatitis A in a **hospitalized patient** does not routinely call for post-exposure prophylaxis (PEP) administration to hospital personnel or to roommates of the case patient. However, once the diagnosis is confirmed, prophylaxis of such contacts may be indicated under certain circumstances. 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*. Infect Control Hosp Epidemiol 1996;17:53-80, and Am J Infect Control 1996;24:24-52.]

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:

a. 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).
b. Masks are not indicated.
c. Gowns are indicated if soiling is likely
d. 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.
e. Hands must be washed after touching the patient or potentially contained articles and before taking care of another patient.
f. 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 s/he 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 10th 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
Fortunately, hepatitis A is not common among the elderly due to a relatively high proportion of immune individuals. Therefore, it is important (as always) to serologically confirm a diagnosis of HAV infection in a nursing home resident. When a case does occur at such a 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 HAV infection 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. One study reported that up to 80% of susceptible institutionalized patients may contract HAV infection within three years of admission. 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 LHA should work with the facility's infection control practitioner (if present) to ensure collection of the following information:
1. Confirm the diagnosis, i.e. make certain the case is definitely IgM anti-HAV positive.

2. Determine facts about the case which impact on the patient for HAV transmission, e.g. profoundness of disability, mobility of resident, fecal continence, level of hygiene, coprophilic behavior (an abnormal interest in feces).
3. 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 LHA'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, consideration should be given to 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) and therefore do not require prophylaxis. Ambulatory clients who have confirmed or suspected cases of hepatitis A 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 not 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 bulk 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 a day care center. 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 you 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 both the case-person 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:

1. Is the contact **susceptible or immune** to HAV infection?

2. 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 time. This is frequently the situation that occurs within a household.

April

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

May

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

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 IG on May 11. Although it is was appropriate to give IG, 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 of doubtful efficacy if she had been exposed to HAV prior to about April 27 (14 days from the date of IG 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.

3. What is the **nature of this individual's contact** with the index case? How strong is the possibility of HAV transmission to the contact?

4. **Can you depend on the contact-person** to follow instructions regarding hygiene? Is contact-person incontinent of stool or a diapered child?

5. Can the contact-person 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.

6. How serious would be the **consequences of failure to exclude** if the contact-person were to subsequently develop hepatitis A? Consider the worst-case scenario.

7. 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 HEALTH AGENCIES WHEN HANDLING HEPATITIS A OUTBREAKS OR SITUATIONS INVOLVING HAV EXPOSURE OF THE PUBLIC

Notification:

- Compile a list of telephone and facsimile (fax) machine numbers and email addresses for CDPHE, adjacent LHA's, hospital infection control practitioners, and local media offices (if you have a public relations officer, use their assistance in contacting the media). Have these numbers on hand before any 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 LHA's which may be affected. Send fax copies of any news releases to CDPHE prior to sending them to the media.

- Consider notification of all hospital infection control practitioners and/or ER's, urgent care clinics, and major clinics in your area. This is particularly important if a news release is being issued. Send these facilities a fax copy of the 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.

- If circumstances warrant, notify appropriate local government offices.

- In dealing with outbreaks or even a single infected employee in a foodhandling establishment that is a franchise, it is often beneficial to 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 IG.

- 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 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 LHA office. Prepare for this by assigning a staff member to handle all the routine calls about clinic hours, location, etc. If possible, maintain a phone line that will not get tied up by these calls in the event that staff from other LHA's or CDPHE need to contact you. This line can even be in another office within your building. Give this "emergency" phone number to CDPHE.

- Chose 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:
(1) a number which will be called when it is their turn, (2) a hepatitis A fact sheet, (3) the consent form for IG/vaccine administration, and (4) 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 both 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 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

1. Hepatitis A questionnaire
2. Questionnaire for high-risk individuals
3. Restaurant inspection worksheet
4. Worksheet for tracking staff of food establishment
5. Sample news release
6. Hepatitis A fact sheet
7. Consent form for IG and/or hepatitis A vaccine administration
8. Screening tool for PEP administration
9. Roles of local and state public health agencies, patients, and physicians
10. References

Interviewer Name _____ ***Interview date*** ___/___/___

Agency _____

COLORADO DEPARTMENT OF PUBLIC HEALTH & ENVIRONMENT
Hepatitis A Questionnaire

For confirmed and suspected cases of hepatitis A
{Questions marked with a * are those that must be entered into the CEDRS record}

***Patient Name** _____ **CEDRS #** _____
***Address** _____ ***Phone (hm)** _____
***City** _____ ***County** _____ **ZIP** _____ ***Phone (wk)** _____
***DOB** _____ ***Age** _____ ***Sex:** M F

***Race** ☐American Indian/Alaska Native ☐Asian ☐Black
(check all that apply): ☐Native Hawaiian/Pacific Islander ☐White ☐Other race_____

***Ethnicity:** ☐ Hispanic ☐Non-Hispanic ☐Other/Unknown

***Place of birth**: ☐USA ☐Other country:_____

***Occupation** (specify if multiple jobs) _____

Last day worked (or attended school/child care) ____/____/____
*Note: If case is a **foodhandler** (i.e. anyone whose hands come into contact with food), fill out and attach the high-risk occupation questionnaire and the food establishment inspection worksheet. If case is a **childcare provider**, or **health/dental care worker**, fill out the high-risk occupation questionnaire.*

Employer/School/Child care facility name: _____
Address: _____ **Telephone#:** _____
Contact person: _____ **Grade/child care class:** _____

Physician (name and location)_____

PART ONE – ILLNESS HISTORY AND LABORATORY RESULTS

***Why was patient tested for hepatitis?** (check all that apply)

☐ Asymptomatic patient with risk factors
☐ Asymptomatic patient with no risk factors
☐ Blood/organ donor screening
☐ Evaluation of elevated liver enzymes
☐ Follow-up testing for previous marker of viral hepatitis
☐ Prenatal screening
☐ Symptoms of acute hepatitis
☐ Unknown
☐ Other (specify): _____

Clinical information

***Is or was patient symptomatic?** ☐ Yes ☐ No ☐ Unknown

***Did the patient experience? (answer for each symptom below)**

Abdominal pain	☐ Yes	☐ No	☐ Unk	**Fever**	☐ Yes	☐ No	☐ Unk
Arthralgia	☐ Yes	☐ No	☐ Unk	**Jaundice**	☐ Yes	☐ No	☐ Unk
Clay colored stool	☐ Yes	☐ No	☐ Unk	**Loss of appetite**	☐ Yes	☐ No	☐ Unk
Dark urine	☐ Yes	☐ No	☐ Unk	**Nausea**	☐ Yes	☐ No	☐ Unk
Diarrhea	☐ Yes	☐ No	☐ Unk	**Vomiting**	☐ Yes	☐ No	☐ Unk
Fatigue	☐ Yes	☐ No	☐ Unk				

***Date of onset of first symptom(s)** __/__/__ **Date of onset of jaundice** __/__/__

***Was patient hospitalized for hepatitis?** ☐ Yes ☐ No ☐ Unknown

***Was the patient pregnant?** ☐ Yes ☐ No ☐ Unknown
Due date: ___ /___/_____

***Did the patient die from hepatitis?** ☐ Yes ☐ No ☐ Unknown
Date of death: ___/___/____

***Date when blood was drawn for hepatitis testing** ___/___/___
HAV serology results:
***Total antibody to HAV** ☐ Positive ☐ Negative ☐ Unknown ☐ Not done
***IgM antibody to HAV** ☐ Positive ☐ Negative ☐ Unknown ☐ Borderline

Liver enzyme values: Test date: ___/___/____
***SGPT (ALT)** _____ Upper limit normal: _____
***SGOT (AST)** _____ Upper limit normal: _____
Total bilirubin _____ Upper limit normal: _____
Other tests _____

***If this case has a diagnosis of hepatitis A that has not been serologically confirmed, is there an epidemiologic link between this patient and a laboratory-confirmed case?** ☐ Yes ☐ No ☐ Unknown

Vaccination history

***Has the patient ever received the hepatitis A vaccine?** ☐ Yes ☐ No ☐ Unk
***If yes,** how many doses? ☐ 1 ☐ ≥ 2
*In what year was the last does received? _____

***Has the patient ever received immune globulin?** ☐ Yes ☐ No ☐ Unk
***If yes**, when was the last does received? ___/___ (month/year)

PART TWO – INVESTIGATING WHERE THE CASE MAY HAVE BEEN EXPOSED

Use a calendar to establish the dates 50 days and 15 days prior to onset of first symptoms. This is the time period during which the case became infected.

Date 50 days prior to onset ___/___/___ 15 days prior to onset ___ /___/___

Use the time interval above to answer the following questions. *(It may be helpful for the case to consult his/her personal or business calendar to assist recall.)*

1. Restaurants and bars at which the patient ate/drank[1] (attach additional sheet if needed)

Name	City	Date(s)	Food/Drink Items Consumed
		/	
		/	
		/	
		/	

2. During this period, list group meals at which the patient ate (e.g. potluck, dinner parties, meals on wheels, etc.).

	Dates
	/
	/
	/
	/

3. During this period, did the patient consume raw shellfish? ☐ Yes ☐No ☐Unknown

If yes, **what, where and when**?_____

4. *During this period, did the patient travel outside of the USA or Canada?

☐ Yes ☐ No ☐ Unknown

If yes, Country _____ Dates of travel: _____

If Mexico, City/Region:_____

5. During this period, did the patient travel outside of Colorado, but within the US?

☐ Yes ☐ No ☐ Unknown

If yes, Cities/states visited _____ Dates of travel: _____

6. *In the *3 months* prior to symptom onset, did anyone in the patient's household travel outside of the USA or Canada? ☐ Yes ☐ No ☐ Unknown

If yes, Country:_____

If Mexico, City/Region:_____

[1]If the case cannot recall specific meals, or restaurant/grocery store visits, ask which establishments they would have been likely have visited.

7. *During this period (15-50 days before onset), did the patient have contact with a person with confirmed or suspected hepatitis A infection?

☐ Yes ☐ No ☐ Unknown

*__If yes,__ was the contact a: (check all that apply)

☐ Household member (non-sexual) ☐ Sex partner
☐ Child cared for by this patient ☐ Playmate
☐ Babysitter of this patient ☐ Other_____

If yes, please supply details about the contact. List names, date(s) of contact, and nature of contact (e.g. family member, dinner party, social gathering, sexual partner, etc.)

Name	Date(s)	Nature of contact
_____	___/___/___	_____
_____	___/___/___	_____
_____	___/___/___	_____

8a. *During this period, did the patient attend or work at a childcare center or preschool?

☐ Yes ☐ No ☐ Unknown

If yes, name and location of the day care/preschool(s)

_____

Date last attended/worked at this facility ___/___/___

8b. *During this period, was the patient a household contact of a person who attends or works at a child care center or preschool?

☐ Yes ☐ No ☐ Unknown

***If yes to either 8a or 8b**, was there an identified hepatitis A case in the child care facility?

☐ Yes ☐ No ☐ Unknown

9. During this period: (please ask both questions regardless of patient's gender)

	0	1	2-5	>5	Unk
***How many male sex partners did the patient have?**	☐	☐	☐	☐	☐
***How many female sex partners did the patient have?**	☐	☐	☐	☐	☐

10. During this period:

*__Did the patient inject drugs not prescribed by a doctor?__ ☐Yes ☐No ☐Unk
*__Did the patient use street drugs but not inject?__ ☐Yes ☐No ☐Unk
***Did the patient spend any time in jail or prison?** ☐Yes ☐No ☐Unk
If yes, specify facility location and dates:_____

PART TWO – INVESTIGATING WHERE THE CASE MAY HAVE BEEN EXPOSED

***Please use this section when case does not have a clear source of infection (e.g. case did not report international travel or contact with a person with hepatitis A)

Date 50 days prior to onset ___/___/___ 15 days prior to onset ___/___/___

Water *(ask about 15-50 day time frame above)*

What was patient's primary source of drinking water?

☐ Municipal ☐ Well water ☐Bottled water ☐Other_____

Did patient drink any untreated water from a pond, stream, spring, or lake? Yes No Unk

If yes, specify where and when: _____

Food history *Interviewer: if patient is unsure, ask patient if it is likely if s/he ate a particular food item*

Did the patient eat any of the following during 15-50 day time frame above? If yes, please specify where these were likely purchased/consumed:

Produce				Where purchased/consumed?
Any food from a salad bar	Y	N	U	
Sprouts (bean, alfalfa, clover…)	Y	N	U	
Uncooked tomatoes	Y	N	U	
Lettuce	Y	N	U	
Prepared at home	Y	N	U	
Lettuce purchased as (check all that apply): ☐ Precut/pre-shredded ☐Head Brand/type:_____				
Prepared elsewhere	Y	N	U	
Uncooked green onions (scallions)	Y	N	U	
Uncooked cilantro	Y	N	U	
Other raw vegetables:_____	Y	N	U	
Any unpasteurized juice or cider	Y	N	U	
Strawberries	Y	N	U	☐ Fresh ☐Frozen
Raspberries	Y	N	U	☐ Fresh ☐Frozen
Blueberries	Y	N	U	☐ Fresh ☐Frozen
Other berries:_____	Y	N	U	☐ Fresh ☐Frozen
Cantaloupe	Y	N	U	
Honeydew	Y	N	U	
Other fruit:_____	Y	N	U	

Other Food Items.			
Foods brought from another country	Y	N	U
Fresh salsa / pico de gallo	Y	N	U
Cream filled pastries	Y	N	U
Health food products or supplements	Y	N	U

PART THREE – POTENTIAL TRANSMISSION FROM THE CASE

Use a calendar to establish the dates 14 days prior to symptom onset and 10 days after symptom onset.
This is the time period during which the case may have been infectious to others.

Date 14 days prior to onset ___/___/___	10 days after onset ___/___/___

1. *Was the case *employed* as a food handler during this infectious period?

☐ Yes ☐ No ☐ Unk

2. Did the case prepare or handle food which was consumed at any gatherings by people outside of case's household (e.g. school or dinner parties, potlucks, bringing food to worksite, etc.)? ☐ Yes ☐ No ☐ Unk

If yes, please list:

Occasion & Locations	Food(s) handled	Date
____________________	____________________	___/___/___
____________________	____________________	___/___/___
____________________	____________________	___/___/___
____________________	____________________	___/___/___

3. List below all of the case's household contacts and other close or intimate contacts during the above infectious period. Indicate whether they attend or work in any of the settings listed (yes/no). In the last column, provide the date which that contact received immune globulin (If no IG given, write "no" in the IG date column. If known to be immune, write "immune" in the IG column.

Name	Age	Food Service	Child care/ Preschool	Health Care	IG Date
____________	_____	_____	____	____	___/___/__
____________	_____	_____	____	____	___/___/__
____________	_____	_____	____	____	___/___/__
____________	_____	_____	____	____	___/___/__
____________	_____	_____	____	____	___/___/__
____________	_____	_____	____	____	___/___/__
____________	_____	_____	____	____	___/___/__
____________	_____	_____	____	____	___/___/__
____________	_____	_____	____	____	___/___/__
____________	_____	_____	____	____	___/___/__
____________	_____	_____	____	____	___/___/__
____________	_____	_____	____	____	___/___/__

For those close contacts above who attend or work in the high risk environments listed above, list the name and location of their work place/child care/preschool.

Name	Location
____________________	____________________
____________________	____________________
____________________	____________________
____________________	____________________

***Is the case suspected as being part of a common-source outbreak?**

☐ Yes ☐ No ☐ Unk

If yes, was the outbreak: (select one)

☐ Foodborne—associated with an infected food handler
Specify food item:_____

☐ Foodborne—NOT assoc. with an infected food handler
Specify food item:_____

☐ Waterborne

☐ Other: _____

☐ Source not identified

Please fill in the total number of doses of IG / hepatitis A vaccine given by *public health* as a response to this case:

IG_____
Adult hep A vaccine_____
Pediatric hep A vaccine_____

(CDPHE is collecting this information to better predict IG/vaccine ordering needs)

If you have access to the information, please fill in the total number of doses of IG / hepatitis A vaccine given at a health care provider's office as a response to this case:

IG at a health care provider's office _____
Adult hep A vaccine at a health care provider's office _____
Pediatric hep A vaccine at a health care provider's office _____

Comments:

******If you have any questions about individual cases or suspected outbreaks, feel free to contract one of the communicable disease epidemiologists at CDPHE or your regional epidemiologist. During business hours, call 303-692-2700. After hours/weekends: 303-370-9395.**

Information from questions marked with a * should be entered into the CEDRS record. Alternatively, completed questionnaires may be faxed to CDPHE (303-782-0338) for CEDRS entry.

COLORADO DEPARTMENT OF PUBLIC HEALTH & ENVIRONMENT
Supplemental Hepatitis A Questionnaire
For High Risk Workers

Case Name _____

Job Title _____ Employer _____

Work address_____ City_____ County_____

Work telephone ( )_____ Supervisor's name _____

Date of onset of first symptom of hepatitis (e.g. fatigue, nausea, anorexia) ___/___/___

Date of onset of jaundice ___/___/___

THE INFECTIOUS PERIOD
The time period individuals are most likely to infect others with hepatitis A is from 14 days prior to the onset of symptoms until 10 days after the onset of symptoms

The date 14 days prior to the onset of symptoms was ___/___/___
The date 10 days after the onset of symptoms was ___/___/___

*The interval between these two dates is the case's infectious period. *
Indicate exact work schedule (dates and hours worked) during the infectious period.

Sun	Mon	Tues	Wed	Thurs	Fri	Sat
☐	☐	☐	☐	☐	☐	☐
☐	☐	☐	☐	☐	☐	☐
☐	☐	☐	☐	☐	☐	☐
☐	☐	☐	☐	☐	☐	☐
☐	☐	☐	☐	☐	☐	☐

Please indicate last day worked. ___/___/___

Did the case have diarrhea or loose stools on any of the days worked during the infectious period?
Y N

If yes, please specify the date(s) worked with diarrhea/loose stools._____

Ask the case to describe his/her handwashing technique in detail:

_____

_____

_____

Does the case wash hands with soap before beginning work?

Never Sometimes Usually Always

Ask the case to describe handwashing and toilet facilities s/he uses at work (i.e. location of sinks, availability of soap, type of soap [liquid vs. bar], method of drying hands [paper towels vs. cloth towel vs. hot air drier], availability of toilet paper, availability of towels):

_____

_____

_____

Questions for foodhandlers – Only

Foodhandler is defined as anyone whose hands come into contact with food.

Ask the case to describe in general his/her foodhandling activities, then mark any and all of the following job duties that the case performed during his/her infectious period:

___prepared salads or did bulk prep for salads

___prepared cold sandwiches

___prepared or handled other uncooked foods (cold cuts, fruits and vegetables, cake/pastry icing, etc.)

___handled garnishes for food and drinks (e.g. lime wedge, parsley, olives, etc.)

___handled any other food that was not subsequently cooked before being served – specify below

___handled ice without utensils (i.e. with bare hands)

If the case handled any of the above items, did s/he wear gloves? (please circle one)

Always Usually Occasionally Never

Did co-workers eat food handled by the case? Y N

Specify any other food-related duties, including deviations from routine job duties, during infectious period:

_____

_____

_____

_____

Questions for childcare workers – Only

How many children attend (enrolled & drop-ins) the childcare facility (CCF) where the case works?
_____

How many staff work at the same CCF where the case works? _____

What is the age range of children who attend the CCF?
_____(months, years) to _____ (months, years)

Are children at the CCF separated and cared for by age group? Y N

If yes, into what age groups are they separated? _____

What is the age range of the children for whom the case provided care during the infectious period?
____ to ____

During the infectious period did the case prepare/hand out food for the children or co-workers? Y N
If yes, specify the food and date(s)
_____

_____

Questions for health care or dental workers - Only

Please make any of the following work activities the case performed while not wearing gloves during the infectious period:

____ inserted hand into patient's mouths for feeding, giving medications, or performing oral hygiene for patients

____ handled food or ice that was consumed by patients or co-workers.

If yes, please specify food/drink and the date consumed.

_____

_____

_____

_____

Does case wash his/her hands before caring for each patient? (please circle one)
Never Sometimes Usually Always

Name of interviewer _____
Date of interview ___/___/___

Worksheet for Inspection of a Food Establishment at Which
A Case of Hepatitis A has been Identified

Name and address of establishment:

_____

Manager/primary contact at this establishment Name _____
Phone_____

Date of onset of symptoms of case ___/___/___

Does the case work a second job? 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 date. (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) Did employee use disposable gloves or utensils when handling cold foods?
___Always
___Usually
___Occasional
___Never

d) If gloves were worn, were they used in a sanitary manner?
___Always
___Usually
___Occasionally
___Never

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

f) Did employee use the handwashing facilities in the food preparation area prior to handling food?

___Always
___Usually
___Occasionally
___Never

g) What is supervisor's overall impression of the case's hygiene?

___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 inspector _____
Date of Inspection ___/___/___

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.

Name	Job Description	Date PEP rcvd	IG/vaccine?	Symptoms?*
1.		/		
2.		/		
3.		/		
4.		/		
5.		/		
6.		/		
7.		/		
8.		/		
9.		/		
10.		/		
11.		/		
12.		/		

**If symptoms compatible with hepatitis A, test serum for anti-HAV IgM*

Sample News Release

FOR IMMEDIATE RELEASE
(Date)

- HEPATITIS A ALERT -

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. Persons who ate these food item(s) on these dates should receive an injection of immune globulin or hepatitis A vaccine if their exposure occurred within the past 14 days. These individuals should contact their physician or their local public health agency immediately and to receive the immunization. Exposed patrons may obtain the immunization through {local public health agency name} {provide place, date, and times for immunization clinics.} Both immune globulin (also called gamma globulin) and hepatitis A vaccine can prevent infection with hepatitis A virus if given within 14 days of exposure.

The early signs and symptoms of hepatitis A appear 2-6 weeks after exposure and commonly 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).

The disease varies in severity, with mild cases lasting two weeks or less and more severe cases lasting 4-6 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 mildly ill persons can still be highly infectious. Persons with illness suggestive of hepatitis 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 foodhandling. 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.

Persons who ate *{implicated risky food item(s)}* at *{name of restaurant}* between *{dates}* are urged to be particularly thorough in handwashing after toileting and prior to 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.

Hepatitis A fact sheet

Because fact sheets are frequently changed to provide new information, CDPHE recommends readers use the hepatitis A fact sheet created by CDC at: http://www.cdc.gov/ncidod/diseases/hepatitis/a/index.htm .

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 for 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% 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 at recommended intervals of 0, and 6-12 months 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.
(Please print)

Name of person receiving IG and/or vaccine	Birth date (mo/day/yr)	Age
Address	City, State	Zip
Signature of person receiving injection(s) or authorized to sign	Date (mo/day/yr)	

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:

_____

Name of person administering IG Date administered

_____

Clinic site

_____

IG Manufacturer Lot number Injection site

_____

Hepatitis A vaccine Manufacturer Lot number Injection site

Sample screening tool for IG/hepatitis A vaccine administration following potential hepatitis A exposure

{{this is a sample to be modified to fit circumstances of the exposure/outbreak}}}

Name:_____
Age:_____ Sex: M F
Address:_____ City:_____ State:____ ZIP:_____
Phone number(s):_____

Allergies:_____ Weight (lbs):_____

Exposure:
Did you eat anything at *{insert restaurant, event, etc }* ?
If yes, on which dates did you eat there? □**date 1** □**date 2** □**date 3 ….**
Did you eat the {insert food or beverages of concern} ?
□**Yes** □**No** □**Not sure**

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**
If yes: When? _____
How many doses? □**1** □**2** □**Not sure**

Have you received an immune globulin (IG or gamma globulin) shot in the last 3 months?
□**Yes** □**No** □**Not sure**
If yes: When? _____

If person said "yes" to any of the above immunity questions, s/he will NOT need PEP.

Recent illness:
During the past 2 months have you had:

Nausea	□**Yes**	□**No**	□**Not sure**
Vomiting	□**Yes**	□**No**	□**Not sure**
Loss of appetite	□**Yes**	□**No**	□**Not sure**
Diarrhea	□**Yes**	□**No**	□**Not sure**
Dark urine (like tea or coca-cola)	□**Yes**	□**No**	□**Not sure**
Yellow skin or eyes	□**Yes**	□**No**	□**Not sure**

If person said yes to these symptoms questions, he should be evaluated by health care provider to determine if he possibly has hepatitis A before administering IG. If jaundice and/or dark urine, consider liver panel.

If person ate {implicated food} at the {xx} restaurant between {date1 and date2} and it has been less than 14 days since exposure, then can offer PEP (IG or vaccine as appropriate) to person.

HEPATITIS A PREVENTION AND CONTROL: ROLES AND EXPECTATIONS

LOCAL PUBLIC HEALTH AGENCY

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

Program Management:

- Incorporate standards and guidelines into community control programs
- Maintain a local surveillance system that includes early reporting of potential outbreak situations and of suspect or confirmed cases to the LHA, and subsequent reporting by the LHA to CDPHE.
- Notify appropriate LHA's, hospital ER's, clinics, and infection control practitioners of public HAV exposure situations and outbreaks.
- Conduct investigations of confirmed cases using the hepatitis A questionnaires contained in this manual. 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, cooperation with LHA's in the management of difficult investigations/cases, and providing information with regard to current recommendations/guidelines.

Program Management:

- Set standards, guidelines for community control programs.
- 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 LHA's and health care providers regarding management of confirmed hepatitis A disease.
- Provide LHA's with immune globulin and/or vaccine, per guidelines.
- Provide laboratory services.
- Provide support to LHA's in unusual situations.

Education:

- Review/recommend media, news releases in outbreak situations.
- Provide education sessions and other resources to LHA's 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., LHA's, physicians, infection control and laboratory personnel.
- Provide CDPHE/CDC literature to the LHA for distribution to local health care providers.
- Collaborate with LHA's, 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 LHA.

Contact Investigations:

- Cooperate with nurse/investigator in assessing the probable source of HAV exposure.
- Assist the LHA 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 LHA.

PRIVATE PHYSICIAN

The role of the private physician includes cooperation with the LHA 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 LHA immediately, and notify the LHA 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 LHA.
- 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 LHA 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

American Academy of Pediatrics. Hepatitis A. In: Pickering LK, ed. 2000 Red Book: Report of the Committee on Infectious Disease. 27th ed. Elk Grove Village, IL: American Academy of Pediatrics; 2006:280-289.

Centers for Disease Control and Prevention. Prevention of hepatitis A through active or passive immunization: recommendations of the Advisory Committee on Immunization Practices (ACIP). MMWR 2006:55(RR07);1-23. http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5507a1.htm.

Colorado Department of Public Health and Environment. Hepatitis A in Colorado, Surveillance Report, December 1999, available at: http://www.cdphe.state.co.us/dc/hav_www.pdf

Garner JS. Guideline for isolation precautions in hospitals. Infect Control Hosp Epidemiol 1996;17:53-80, and Am J Infect Control 1996;24:24-52. http://www.cdc.gov/ncidod/hip/ISOLAT/Isolat.htm