HEPATITIS A SURVEILLANCE PROTOCOL

Public Health Action

1. Educate providers and laboratories to report cases of hepatitis A to the local health department in the patient's county of residence within 24 hours of diagnosis.

2. Upon receipt of a report of hepatitis A:
   a. Look carefully at the laboratory result. Only persons with a positive IgM anti-HAV antibody are acutely infected with hepatitis A. Asymptomatic persons with a positive "total anti-HAV antibody" may have either recent or remote hepatitis A infection and do not need to be investigated or reported. HAV stands for "hepatitis A virus."
   b. Collect all the information necessary for case ascertainment, and record on the reportable disease card and the CDC supplemental hepatitis form:
      i. Date of onset of symptoms (date of jaundice is considered the most reliable sign) and type of symptoms;
      ii. Liver function tests; and
      iii. IgM antibody to hepatitis A virus (anti-HAV IgM).
   c. Calculate the infectious period using a calendar. Persons with acute hepatitis A are most infectious from two weeks before onset of symptoms to one week after onset. A hypothetical example follows:

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

Sun	Mon	Tues	Wed	Thurs	Fri	Sat
				(2 weeks before onset)		
				ONSET		
				(1 week after onset)		

   d. Investigate *forward* to identify *persons* who may be at risk for acquiring infection from this case.
      i. Administer immune globulin (IG) (0.02 mL/kg IM) to high-risk contacts **if** IG can be administered within two weeks of the last contact with the case while the case was infectious. These persons include:
         (1) Household contacts;
         (2) Sexual contacts; and
         (3) Persons who have shared illegal drugs.
      ii. Identify high-risk settings for transmission of hepatitis A:
         (1) Day care centers. IG should be administered to all staff and attendees of day care centers or homes if a) one or more cases of hepatitis A are recognized in children or employees, or b) cases are

recognized in two or more households of center attendees. In centers that do not provide care to children who wear diapers, IG need be given only to classroom contacts of an index case-patient. When an outbreak occurs (i.e. hepatitis cases in three or more families), IG also should be considered for members of households that have children (center attendees) in diapers.

(2) Foodhandlers. If a foodhandler is diagnosed with hepatitis A, IG should be administered to other foodhandlers at the same location. Administration of hepatitis A vaccine to these other foodhandlers might also be considered. Because common-source transmission to patrons is unlikely, IG administration to patrons may be considered **if** the foodhandler both directly handled uncooked foods or foods after cooking during the infectious period **and** had diarrhea or poor hygienic practices **and** patrons can be identified and treated within two weeks after the exposure. In settings where repeated exposures to HAV may have occurred (e.g. institutional cafeterias), stronger consideration of IG use may be warranted. In the event of a common-source outbreak, IG should not be administered to exposed persons after cases have begun to occur because the two-week period during which IG is effective will have been exceeded.

e. Investigate *backward*:

i. Determine the incubation period for the case of hepatitis A. Again, use a calendar. The incubation period is two to six weeks prior to onset.

Incubation Period for Hypothetical Case of Hepatitis A
(Shaded area indicates the incubation period)

Sun	Mon	Tues	Wed	Thurs	Fri	Sat
				(6 weeks before onset)		
				(2 weeks before onset)		
				ONSET		

ii. Identify any potential source. Symptomatic persons identified during contact investigation should be tested for anti-HAV IgM. Persons found to be positive for anti-HAV IgM should be investigated and reported as cases of hepatitis A according to steps 2a through 2f.

iii. Identify any risk factors for HAV infection during the two- to six-week incubation period. Risk factors include:

(1) Close contact with a person with confirmed or suspected hepatitis A;
(2) Employment or attendance in a nursery, day care center, or preschool;
(3) Travel outside of the United States or Canada;
(4) Illegal drug use;
(5) Number of male sexual partners; and
(6) Number of female sexual partners.

iv. Investigate vaccination history and record as part of the investigation, including:
(1) Hepatitis A vaccination status (number of doses, dates of vaccination);
(2) Missed opportunities for prevention/vaccination:
(a) Household contact of persons with acute hepatitis A;
(b) Sought medical care prior to foreign travel; or
(c) Ever in treatment for illegal drug use.

f. Report cases of hepatitis A to the West Virginia Infectious Disease Epidemiology Program (IDEP) by submitting a completed reportable disease card, a completed CDC supplemental investigation form, and all laboratory documentation.

3. For small clusters of hepatitis A (two to five individuals reported in a short time frame):
a. Investigate as in steps 2a through 2f. Most small clusters of hepatitis A are due to person-to-person spread. This will become apparent through good contact tracing of cases of hepatitis A.
b. Contact IDEP for assistance – urgently if cases are not linked to one another.

4. For larger clusters and outbreaks (> five individuals reported in a short time frame):
a. Begin enhanced passive surveillance or active surveillance for additional cases.
b. Investigate as in steps 2a through 2f.
c. Contact IDEP immediately – urgently if cases are not attributable to person-to-person spread.

Disease Control Objectives

1. By timely and appropriate use of immune globulin (IG), prevent cases resulting from a reported case of hepatitis A due to:
a. Household or sexual contact with the case; or
b. Contact with the case in a high-risk setting such as in day care or a commercial food establishment.

2. Prevent unnecessary transmission of hepatitis A through the early recognition and investigation of outbreaks so that control measures can be instituted in a timely fashion.

Disease Prevention Objectives

1. Reduce the incidence of hepatitis A through education of:
a. The general public about appropriate handwashing;

b. Food service workers about appropriate handwashing and not working while sick; and
c. Day care operators about appropriate handwashing and exclusion of ill children and staff.

2. Reduce the incidence of hepatitis A through appropriate use of the hepatitis A vaccine for:
   a. Persons traveling to or working in countries that have high or intermediate endemicity of infection;
   b. Men who have sex with men;
   c. Illegal drug users;
   d. Persons who have occupational risk for infection;
   e. Persons who have clotting factor disorders; and
   f. Persons with chronic liver disease including persons with chronic infection due to hepatitis B or C.

Surveillance Objectives

1. To determine the incidence of Hepatitis A in West Virginia.

2. To identify demographic characteristics of persons with hepatitis A.

3. To detect any increase in the incidence of hepatitis A or any change in the usual pattern of disease transmission.

Clinical Description

Hepatitis A is a viral illness that results in jaundice, fever, loss of appetite, nausea, malaise, and sometimes diarrhea. Affected individuals may have abdominal pain, an enlarged liver, dark urine, and light stool. The majority of infected infants and preschool children have no signs or symptoms of the disease; however, they are just as infectious as adults. In contrast to hepatitis B and C, fulminant disease or death occurs only rarely, and there is no carrier state. Severe disease is more likely to occur in the elderly or in persons with underlying liver disease (including hepatitis C); however, complete recovery is the rule.

Relapsing disease occasionally occurs. Chronic disease does not occur.

Etiologic Agent

Hepatitis A virus is a member of the *Picornaviridae* family of viruses, which includes the Enteroviruses and the Rhinoviruses. HAV is an RNA virus that is very hardy and can survive in a dried form for several months. Heating foods to >185 °F or disinfecting surfaces with 1:100 dilution of household bleach is necessary to inactivate HAV.

Reservoir

Humans, rarely chimpanzees, and certain other non-human primates.

Mode of Transmission

Most transmission is person-to-person by the fecal-oral route, including via sexual contact. Outbreaks have been related to contaminated water, foods contaminated by ill foodhandlers, raw or undercooked molluscs harvested from contaminated waters, and contaminated produce, including lettuce and strawberries. Outbreaks have also been associated with illegal use of injection and non-injection drugs. Rare cases of transmission have been associated with blood transfusion.

Incubation Period

The incubation period is 15 to 50 days, average 28 to 30 days.

Infectious Period

The infectious period is from two weeks before the onset of symptoms to one week after onset. If jaundice is present, use the date of the onset of jaundice as the date of symptom onset.

Outbreak Recognition

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

Point source outbreaks are those that result from one common exposure or infected person. Hepatitis A outbreaks of this nature are generally recognized after a larger than expected number of cases of hepatitis A are reported within a limited time period. Since the incubation period of hepatitis A is long, 15 to 50 days, and the infectious period can be as long as three weeks, the onset dates for cases with a common source are usually spread over several weeks. Examples include community-based outbreaks due to a single infected foodhandler or due to contaminated food items such as produce and shell fish.

Propagated outbreaks are those that involve person-to-person transmission and result in two or more generations of cases. Hepatitis A outbreaks of this nature are generally recognized when more than one case occurs in an institution (day care centers), or links are recognized between cases in the community (e.g. friends in a mobile home park). Cases in these outbreaks usually have widely spaced onset dates (three to six weeks) with little clustering in time.

Case Definition for Hepatitis A

Clinical Description

An acute illness with

a. discrete onset of symptoms (e.g. fatigue, abdominal pain, loss of appetite, intermittent nausea, vomiting), and
b. jaundice or elevated serum aminotransferase levels.

Laboratory Criterion for Diagnosis

IgM antibody to hepatitis A virus (anti-HAV) positive.

Case Classification

Confirmed: a case that meets the clinical case definition and is laboratory confirmed, or a case that meets the clinical case definition and occurs in a person who has an epidemiologic link with a person who has laboratory-confirmed hepatitis A (i.e. household or sexual contact with an infected person during the 15 to 50 days before the onset of symptoms).

Laboratory Diagnosis

Positive total antibodies (anti-HAV total) to hepatitis A virus indicate acute or past infection of hepatitis A. Anti-HAV IgM must be positive to diagnose acute infection. Serum IgM is present at the onset of illness and usually disappears within four months but may persist for six months or longer.

Collect a blood specimen in a red top tube or a red and grey striped tube. Due to the number of tests that are run along with hepatitis A, the larger the collection tube, the better. Submit the specimen to the West Virginia Office of Laboratory Services with a completed hepatitis form. The test currently takes overnight to run, so immediate transport to OLS is necessary to get results in a timely fashion.

Preventive Interventions

1. Hepatitis A (inactivated) vaccine *is* recommended for:
    a. Children who live in states where the average annual hepatitis A rate during 1987 to 1997 was ≥ 20 cases per 100,000 population (roughly twice the national average); and
    b. Persons at increased risk for hepatitis A infection, including
        i. Persons traveling to or working in countries that have high or intermediate endemicity of infection;
        ii. Men who have sex with men;
        iii. Illegal drug users;
        iv. Persons who have occupational risk for infection;
        v. Persons who have clotting factor disorders; and
        vi. Persons with chronic liver disease including persons with chronic hepatitis B or C infections.

2. Hepatitis A (inactivited) vaccine *may be* recommended for children who live in states where the average annual hepatitis A rate during 1987 to 1997 was ≥ 10 cases per 100,000 population but less than 20 cases per 100,000 population.

3. The vaccine has also been used in control of community outbreaks. For more information, refer to MMWR October 1, 1999; Vol. 48; No. RR-12.

Post Exposure Prophylaxis

Persons recently exposed (within two weeks) to hepatitis A should receive immune globulin (0.02 mL/kg) as soon as possible, but not greater than two weeks after the last exposure. Persons who have received at least one dose of hepatitis A vaccine at least one month prior to exposure do not need immune globulin. During case investigation, the following high-risk contacts of a laboratory confirmed case should receive immune globulin:

a. Close personal contacts. Includes household and sexual contacts and persons who share illegal drugs. Other forms of ongoing close personal contact (e.g. babysitting) should be considered.
b. Day care centers. Immune globulin should be administered to all previously unvaccinated staff and attendees of day care centers or homes **if** one or more cases are recognized in children or employees **or** cases are recognized in two or more households of center attendees. In centers that do not care for diapered children, immune globulin need only be administered to classroom contacts of an index case. IDEP should be consulted about outbreak management in these settings.
c. Common source exposure. If a foodhandler is diagnosed with hepatitis A, immune globulin should be administered to foodhandlers at the same establishment. Immune globulin administration to patrons may be considered **if** the foodhandler directly handled uncooked foods or foods after cooking while infectious **and** the foodhandler had diarrhea or poor hygienic practices **and** patrons can be identified and treated within two weeks after the exposure.
d. Schools, hospitals, and work settings. Immune globulin is not routinely indicated when a single case occurs in an elementary or secondary school, or in an office or other work setting. IDEP should be consulted about outbreak management in these settings.

Surveillance Indicators

- Proportion of investigations with complete clinical and demographic information.
- Proportion of cases with complete risk factor history from two to six weeks before the onset of symptoms.
- Proportion of cases with vaccination history and history of missed opportunities.