EPIDEMIOLOGY

TABLE OF CONTENTS

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Protocol for Contacts of Persons with *Haemophilus influenzae* type b (Hib)

I. Purpose

The purpose of this protocol is to ensure county health department nurses are able to conduct case investigations and appropriately provide prophylaxis to contacts of persons with *Haemophilus influenzae* type b (Hib).

Primary investigation of cases is the responsibility of the Area Surveillance Nurse.

II. Contact Requirements for Dispensing Prophylaxis

Before prophylaxis is given to a contact, there must be evidence that the case has invasive infection with *Haemophilus influenzae* type b AND the contact must have a risk of contracting Hib sufficient to warrant prophylaxis.

A. Appropriate documentation that the index patient has invasive infection with Hib

1. A positive culture for *H. influenzae* from a normally sterile site which includes blood, cerebrospinal fluid (CSF), or joint, pleural, or pericardial fluids. To meet this requirement, the laboratory must state that the isolate of *H. influenza* is **type b**. If the isolate has not been typed, request that it be sent to the Bureau of Clinical Laboratories in Montgomery for typing. Prophylaxis is only given for **type b**; or

2. *Haemophilus influenzae* type b antigen in CSF in a patient diagnosed with meningitis by a physician or whose CSF has greater than 5 white cells visualized per high power field or a WBC count greater than 5 cells per micro liter (µL).

B. Period of Communicability

The exact period of communicability is unknown, but is thought to be from seven days prior to the onset of illness until the organism is no longer present. The individual becomes non-infectious approximately 24 hours after starting effective antibiotic therapy.

Incubation period is unknown, probably short, 2-4 days.

C. Recommendations for Prophylaxis with Rifampin

1. Prophylaxis is recommended for all household contacts in the following circumstances:
    a. Household with a child younger than 12 months of age who has not received the primary series.
    b. Household with at least 1 contact who is younger than 48 months of age who is unimmunized or incompletely immunized against Hib,
    c. Household with a contact who is an immunocompromised child, even if the child is older than 48 months and fully immunized, all members of the household should receive rifampin because of the possibility that immunizations may not have been effective.

2. Prophylaxis is recommended for all attendees and staff in a child care center or nursery school if there have been **2 or more cases** of invasive Hib in the center within 60 days, and the children in the center are unimmunized or incompletely immunized against Hib.

3. Prophylaxis is recommended for the case at the end of their therapy for invasive infection if they were not treated with cefotaxime (Claforan) or ceftriaxone (Rocephin) if:
    a. they are younger than 2 years of age; **or**
    b. have a susceptible household contact.

D. Recommendations for Not Giving Prophylaxis:

Prophylaxis is **NOT** usually recommended for **any** persons in the following circumstances:

1. For occupants of households without children younger than 48 months of age other than the case;
2. For nursery school and child care centers with contacts of just 1 case, especially those older than 2 years of age; or
3. For pregnant women.

E. Vaccination

In addition to recommending prophylaxis with rifampin, unimmunized or incompletely immunized children should receive a dose of vaccine and should be scheduled for completion of the recommended age-specific immunization schedule.

III. Dispensing of Rifampin

The main role of public health staff is to assure appropriate contacts receive prophylaxis. Generally, contacts should receive prophylaxis because their physician has written a prescription and the contact fills the prescription at a pharmacy.

Nurses may dispense rifampin to contacts that do not have a physician, who cannot obtain a prescription from their physician or who cannot reach their healthcare provider.

The dosage of rifampin is 20 mg/kg (maximum dose is 600 mg) once a day for four days. Infants less than one month of age are given a reduced dose of 10 mg/kg once a day for four days. For adults, each dose is 600 mg.
For those contacts who cannot take pills, try to find a pharmacist who will make a suspension. Alternatively, if the parent seems trainable, he/she can be carefully instructed to put the contents of a capsule into a food such as apple sauce which is fed to the child. Each dose made this way should be prepared just before feeding it to the child. A dosage chart for rifampin prophylaxis is below.

IV. Counseling of Contacts Who Are Provided With Rifampin Prophylaxis

Contacts of persons with Hib should be counseled on the following:

A. Rifampin allergy is a contraindication. Before dispensing, make sure each contact is not allergic to rifampin.

B. Rifampin should not be taken by pregnant women.

C. Rifampin decreases the efficacy of oral contraceptives. Alternative contraceptive measures should be used while taking this medication.

D. Rifampin causes body secretions to turn red or orange. Contact lenses should not be worn because rifampin may discolor them.

E. Rifampin should be taken on an empty stomach.

V. Management of contacts in a Daycare Facility

If the cases are associated with a daycare center or daycare home in which attendees are less than 2 years of age, the Division of Epidemiology should be notified and the appropriate staff should begin an investigation of the case using the following protocol:

A. Visit the daycare facility and discuss the diagnosis, symptoms, and mode of transmission with the center director and staff. Give the director a copy of the *Haemophilus influenzae* type b fact sheet (attached).

B. Insure that each child has a valid Alabama Certificate of Immunization and that each child is appropriately vaccinated against Hib.

C. Discuss recommendations for rifampin prophylaxis with the Division of Epidemiology.

D. If found that children are incompletely immunized or unimmunized, instruct the center director to inform parents of classroom contacts about the case and the recommendations made by the Division of Epidemiology (sample letter for parents is attached).

E. Instruct the center director and staff to observe the attendees for symptoms of Hib disease and to refer symptomatic children immediately for medical evaluation.

Rifampin Prophylaxis for Hib Dose Chart

Dosage for Infant Less than One Month Age

Weight in Pounds/Kilograms	Dosage of infant less than 1 month old (mg daily for 4 days)
4-5 pounds (2 kilograms)	20
6-10 pounds (3-5 kilograms)	40
11-14 pounds (5-6 kilograms)	60
15-20 pounds (7-9 kilograms)	75

Dosage for Persons Greater Than or Equal to One Month Old

Weight in Pounds/Kilograms	Dosage (mg daily for four days)
4-5 pounds (2 kilograms)	40
6-10 pounds (3-5 kilograms)	75
11-14 pounds (5-6 kilograms)	110
15-20 pounds (7-9 kilograms)	150
21-28 pounds (10-12 kilograms)	225
29-36 pounds (13-16 kilograms)	300
37-45 pounds (17-20 kilograms)	375
46-57 pounds (21-26 kilograms)	450
≥ 57 pounds (≥ 27 kilograms)	600

Haemophilus influenzae type b (Hib) Fact Sheet

What is *Haemophilus influenzae* type b (Hib) disease?

Hib is a bacteria which can infect anyone. Infections generally cause mild or no symptoms. Unfortunately, Hib can occasionally cause severe disease such as meningitis (inflammation of the covering of the spinal column and brain) and blood stream infections. It can also cause pneumonia, arthritis, and infections of other parts of the body.

Who gets Hib disease?

Hib disease is most common in unvaccinated children 3 months to 3 years of age.

How is Hib spread?

Hib disease may be transmitted through contact with mucus or droplets from the nose and throat of an infected person.

What are the symptoms of Hib disease?

Symptoms may include fever, nausea, and vomiting. Other symptoms depend upon the part of the body affected.

When infected with *Haemophilus Influenzae* type b, how soon do symptoms appear?

Symptoms usually appear in less than ten days from exposure, but more commonly in 2 to 4 days.

How long is a person able to spread Hib disease?

The contagious period varies and, unless treated, may persist for as long as the organism is present in the nose and throat, even after symptoms have disappeared.

Does past infection with *Haemophilus Influenzae* type b make a person immune?

Past infection does not lead to immunity. Children who have had Hib disease are at risk of recurrence.

What is the treatment for Hib disease?

People with serious infections and people who may be carrying the bacteria are treated with specific antibiotics.

What can be done to prevent the spread of Hib disease?

Hib can be prevented with a highly effective vaccine which may be administered as early as six weeks of age. Hib vaccination is required for daycare attendance in Alabama.

If cases of Hib are diagnosed in a daycare center, antibiotics may be given to the staff and other daycare attendees to prevent more cases.

Daycare Letter for Two or More Cases

Date

Dear Parent and Daycare Staff,

Recently, two or more children who attend this daycare developed an illness caused by the bacteria *Haemophilus influenzae* type b (Hib). This bacteria, while not as contagious as illnesses caused by some viruses (e.g., measles and chickenpox), occasionally can be transmitted from person to person in areas of close contact. Many children and adults carry Hib in their nose or throat without any sign of illness, while others may develop serious symptoms.

When two or more cases of Hib occur in a daycare center where there are children who have not completed the Hib vaccine series, the Alabama Department of Public Health recommends that attendees and staff receive preventive therapy with the antibiotic rifampin.

Please contact your healthcare provider immediately and inform him/her that **TWO** or more children in the daycare center have developed Hib and that the Health Department recommends prevention treatment with rifampin. In cases of an allergy to rifampin, an alternative antibiotic can be administered. Pregnant women should not take rifampin and should take alternative antibiotics as well. Please notify your local health department nurse if you do not have a physician so arrangements can be made to provide preventive treatment.

If symptoms of Hib (fever, headache, nausea, vomiting, stiff neck, unusual sleepiness, weakness, or difficulty breathing) are experienced, seek medical attention immediately.

If you have questions, please contact your physician or local county health department.

Sincerely,

Protocol for Contacts of Persons with Hepatitis A

I. Purpose

The purpose of this protocol is to ensure that county health department nurses understand the appropriate prophylaxis for contacts of persons with hepatitis A.

Primary investigation of cases is the responsibility of the Area Surveillance Nurse.

II. Requirements for Administering Postexposure Prophylaxis to Contacts

A. Before recommending the administration of hepatitis A vaccine or Immune Globulin (IG) to a contact, <u>all of the following must be true</u>:

1. The contact is presumed susceptible to hepatitis A; **and**
2. There is sufficient evidence that the source case has hepatitis A; **and**
3. The exposure occurred while the source case was infectious; **<u>and</u>**
4. The contact had exposure sufficient to warrant receipt of hepatitis A vaccine or IG.

B. Sufficient evidence that someone has hepatitis A to warrant prophylaxis of contacts is denoted by <u>one</u> of the following, which must be documented:

1. Patient had a discrete onset of symptoms, has jaundice or elevated serum aminotransferase levels, **<u>and</u>** is IgM anti-HAV-positive; **or**

2. Patient is jaundiced and is epidemiologically linked to a confirmed case; **or**

3. Patient is an out-of-state resident and the diagnosis of hepatitis A was made by a reliable source (such as a public health department); **or**

4. Patient is a child in daycare, < 6 years old with nonspecific symptoms and is IgM anti-HAV-positive; **or**

5. Patient is determined to be a case after review of information by State Epidemiologist and/or his designee.

C. Period of Communicability

A person with hepatitis A is typically infectious for 1-2 weeks before the onset of symptoms until 7 days after the onset of jaundice.

The incubation period averages 28 – 30 days (range 15 – 50 days).

D. Recommendations for Postexposure Prophylaxis

The main role of public health staff is to assure appropriate contacts receive prophylaxis. Generally, contacts should receive prophylaxis because their physician has written a prescription and the contact fills the prescription at a pharmacy.

Public Health surveillance nurses will identify all contacts, and recommend that contacts be given postexposure prophylaxis with hepatitis A vaccine or Immune Globulin within 2 weeks of last exposure to an infected case. Outbreaks in institutions may warrant mass prophylaxis. Public Health nurses may administer the hepatitis A vaccine or advise persons to contact their healthcare provider for treatment. If treatment is provided by personal medical providers, documentation that hepatitis A vaccine or IG was received must be provided to the health department.

Persons who have received one dose of hepatitis A vaccine at least one month prior to exposure do not need IG. 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.

Suggested IG Dose per Aggregate Weight Group

Weight in Pounds (Kilograms)	**IG Dose***
1-55 lbs (<25kg)	0.5 ml
56 lbs -110 lbs (26kg-50kg)	1.0 ml
111 lbs- 220 lbs (>51kg-100kg)	2.0 ml
221 lbs or more (>101kg)	3.0 ml

* Optional to weigh each individual and calculate dose. Calculation (Patient weight in lbs/2.2)*(0.02) = exact IG Dose

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; although vaccine can be used if IG cannot be obtained.

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

1. **Close personal contact.** Hepatitis A vaccine or IG should be recommended to be administered to all previously unvaccinated household and sexual contacts of persons with serologically confirmed hepatitis A if < 14 days have passed since the last exposure while the case was infectious. In addition, persons who have shared illicit drugs (injection and noninjection drug users) with a person who has serologically confirmed hepatitis A should receive hepatitis A vaccine, or IG and hepatitis A vaccine simultaneously. Consideration also should be given to providing IG or hepatitis A vaccine to persons with other types of ongoing, close personal contact (e.g., regular babysitting) with a person with hepatitis A.

2. **Child care centers.** Hepatitis A vaccine or IG should be recommended to be administered to all previously unvaccinated staff members and attendees of child care centers or homes if 1) one or more cases of hepatitis A are recognized in children or employees or 2) cases are recognized in two or more households of center attendees.

   In centers that do not provide care to children who wear diapers, hepatitis A vaccine or IG needs to be administered only to classroom contacts of the index patient. When an outbreak occurs (i.e., hepatitis A cases in three or more families whose children attend the same daycare), hepatitis A vaccine or IG also should be considered for members of households that have children in diapers.

   Note: If hepatitis A occurs in the households of three or more families of children who attend the same daycare center, contact your surveillance nurse or the Division of Epidemiology for the recommendation of administering hepatitis A vaccine or IG to daycare attendees and their household contacts.

3. **Common-source exposure.** If a food handler is diagnosed with hepatitis A, vaccine or IG should be administered to other food handlers at the same establishment.

   Hepatitis A vaccine or IG administration to patrons typically is not indicated but may be considered if:

   1) During the time when the food handler was likely to be infectious, the food handler both directly handled uncooked or cooked foods and had diarrhea or poor hygienic practices; and

   2) Patrons can be identified and treated <2 weeks after the exposure.

   In settings in which repeated exposures to HAV might have occurred (e.g., institutional cafeterias), stronger consideration of hepatitis A vaccine or IG

use could be warranted. In the event of a common-source outbreak, postexposure prophylaxis should not be provided to exposed persons after cases have begun to occur because the 2-week period after exposure during which hepatitis A vaccine or IG is known to be effective will have been exceeded.

4. **Schools, hospitals, and work settings.** Hepatitis A postexposure prophylaxis is not routinely indicated when a single case occurs in an elementary or secondary school or an office or other work setting, and the source of infection is outside the school or work setting. Similarly, when a person who has hepatitis A is admitted to a hospital, staff members should not routinely be administered hepatitis A postexposure prophylaxis; instead, careful hygienic practices should be emphasized. Hepatitis A vaccine or IG should be recommended for persons who have close contact with index patients if an epidemiologic investigation indicates HAV transmission has occurred among students in a school or among patients or between patients and staff members in a hospital.

III. Information about Hepatitis A Vaccine

Do not administer hepatitis A vaccine if patient has had an allergic reaction to a previous dose of vaccine component. The safety of hepatitis A vaccination during pregnancy has not been determined; however, because hepatitis A vaccine is produced from inactivated hepatitis A virus, the theoretical risk to the developing fetus is expected to be low.

Two inactivated hepatitis A vaccines are available, Havrix (GlaxoSmithKLine) and Vaqta (Merck). Both are packaged as single-dose vials and in pre-filled syringes and are ready for use without reconstitution; both must be shaken before administration (discard any unused solution). The anterolateral thigh (children) and the deltoid muscle (adults) are the preferred sites for intramuscular injection. The table below outlines the recommended dosages by age groups.

For detailed information on hepatitis A vaccine administration, please refer to Immunization chapter.

Hepatitis A Vaccines			
Vaccine	Age group	Dose	Volume
Havrix (GlaxoSmithKLine)	1-18 yrs	720 ELISA Units	0.5 mL
	19 yrs & older	1440 ELISA Units	1.0 mL
Vaqta (Merck)	1-18 yrs	25 Units	0.5 mL
	19 yrs & older	50 Units	1.0 mL

Note: (Hepatitis A vaccine may be administered at the same time as IG for children receiving postexposure prophylaxis in child care centers; however, separate injection sites and syringes should be used).

IV. Information about Immune Globulin

Before recommending the administration of IG, make sure patient is not allergic to IG. Pregnancy is not a contraindication to IG. The standard dose of IG for hepatitis A postexposure prophylaxis is 0.02 mL/kg of body weight. IG is given intramuscularly, preferably in the anterolateral aspects of the upper thigh (children) and the deltoid muscle of the upper arm (adults). The volume injected into the deltoid should not exceed 0.5 ml in children and 1.0 ml in adults. If a volume greater than 0.5 (children) and 1.0 (adults) is required, administer in divided dosage.

V. Investigation of Cases Associated with a High-Risk Setting

Cases associated with a daycare center or home, food establishment, hospital, or other medical setting or institution should be reported **within 24 hours** to the Division of Epidemiology. The surveillance nurse and the environmentalist should then begin the investigation by visiting the establishment. Investigation protocol is outlined below.

A. **Daycare Center or Daycare Home:**

1. Evaluate the physical layout of classrooms, the ages of the attendees, the degree of intermixing of attendees, and the presence of unreported cases in staff and attendees;

2. Evaluate the environmental aspects of the facility to ensure that:

   a. Soap and paper towels are available and conveniently located for handwashing;

   b. Containers for soiled diapers and linen are available and adequate to prevent the spread of contamination; and

   c. Environmental cleaning products are available for cleaning contaminated surfaces.

3. Discuss the diagnosis, symptoms, mode of transmission, and ADPH recommendations with the daycare director and staff. Give a copy of "**Hepatitis A: Information for Daycare Centers**" to the Director. Stress the importance of thorough hand washing after bowel movements, diapering children or handling soiled linen and before preparing or eating food;
4. Instruct the daycare director to inform parents of ADPH recommendations. A sample letter is attached for this purpose;

5. Request that the daycare director notify the local county health department of additional cases in staff, attendees, or households of attendees;

6. Recommend excluding cases and symptomatic persons from daycare attendance for one week following the onset of jaundice. If hepatitis A vaccine or IG is given to all of the attendees and staff of the daycare center or home, cases need not be excluded; and

7. If administration of hepatitis A vaccine or IG is indicated in the daycare center or home:

   a. Follow health department protocol to record the administration of vaccines when a Comprehensive Health Record (CHR) will not be opened;

   b. Recommend excluding attendees or staff members who do not receive hepatitis A vaccine or IG from all daycare settings **for six weeks** to prevent further spread; and

   c. Hepatitis A vaccine or IG should be administered to all new attendees or staff members who enter the facility within six weeks of case diagnosis.

B. **Food Handlers:**

1. Evaluate the staff to identify other symptomatic persons. Restrict cases and symptomatic persons from handling food for one week following onset of jaundice;

2. Discuss symptoms, mode of transmission and ADPH recommendations with the staff. Give a copy of "**Hepatitis A: Information for Food Handlers**" to each member of the staff. Stress the importance of thorough handwashing after bowel movements and before preparing or eating food;

3. Evaluate environmental aspects of the food establishment to ensure that:

   a. Soap and paper towels are available and conveniently located for handwashing; and

   b. Environmental cleaning products are available for cleaning contaminated surfaces.

3. Manage contacts and provide postexposure prophylaxis as indicated (Refer to Section IC).

C. **Hospital (Staff or Patients):**

The surveillance nurse should consult with the hospital infection control nurse.

Routine administration of hepatitis A vaccine or IG to hospital personnel is not indicated. Rather, sound hygienic practices should be emphasized. Staff education should point out the risk of exposure to hepatitis A and should emphasize precautions regarding direct contact with potentially infective materials.

D. **Institutions for Custodial Care (Staff or Residents):**

Living conditions in some institutions favor transmission of hepatitis A, for example prisons and facilities for the developmentally disabled,. When outbreaks occur, giving hepatitis A vaccine or IG to residents and staff who have close contact with persons with hepatitis A may reduce the spread of disease. Depending on the epidemiologic circumstances, prophylaxis may be limited or may involve the entire institution. If a case of hepatitis A occurs in an institution for custodial care, consultation MUST be made with the Division of Epidemiology.

Hepatitis A: Information for Daycare Centers

What is hepatitis A?

Hepatitis A (formerly known as infectious hepatitis) is a liver disease caused by the hepatitis A virus (HAV). Hepatitis A is a fairly common disease.

What are the symptoms of hepatitis A?

Only 10 percent of children less than six years old who are infected with HAV have any symptoms, as opposed to infections among adults where 75 percent are symptomatic. Often the first clue that HAV transmission is occurring in a daycare center is the occurrence of clinical illness among adults, either care givers or family members of the children. Typical signs and symptoms are jaundice (a yellowing of the skin and the whites of the eyes), dark urine, tiredness, and light-colored stools. Diarrhea is a common finding among children but rare among adults.

How is the virus spread?

HAV enters through the mouth, multiplies in the body, and is passed in the stool. Humans are the only source of HAV. The virus can be carried on the hands of an infected person and can be spread by direct contact, or by consuming food and drink that had been handled by that person.

What is the incubation period?

The incubation period is from 2 weeks to 6 weeks after exposure, but is usually 3 to 4 weeks.

Is there a treatment for hepatitis A?

There are no special medications or antibiotics that can be used to treat a person once the symptoms appear.

How long is an infected person able to spread HAV?

Persons infected with HAV are contagious starting several weeks before symptoms appear until several days after jaundice appears, but some people who are able to infect others may have no symptoms. Persons with HAV are most infectious during the week before jaundice appears. After the first week of jaundice, most people with HAV are probably not infectious.

Should a child or worker with hepatitis A be excluded from daycare?

If hepatitis A vaccine or Immune Globulin (IG) is not administered to children and staff in the daycare center, it is recommended that symptomatic children and workers be excluded from the daycare center for one week following the onset of symptoms/jaundice.

How can hepatitis A be prevented?

The single most effective way to prevent the spread of hepatitis A is careful handwashing after using the bathroom. Because cases are most infectious before they become sick, handwashing must be done at all times. Close contacts to persons with hepatitis A may be given hepatitis A vaccine or IG to either prevent the illness or to lessen the effects. The hepatitis A vaccine cannot be given to children less than 1 year of age.

What can the daycare center expect from the health department?

The main concern of the Alabama Department of Public Health is to prevent the continued spread of disease in the daycare setting.

A representative from the county health department will make a visit to the center. The staff will be questioned regarding diaper-changing techniques, food preparation, handwashing facilities, and the possibility of other ill or asymptomatic children and workers. After consultation with the Division of Epidemiology, the county representative will make recommendations as to ways to prevent spread and for the preventive treatment of contacts of the case of hepatitis A.

In some circumstances, children and workers will need hepatitis A vaccine or IG to lessen their chance of becoming ill. This may be obtained through the county health department or a private physician. The county representative will determine who should be recommended to receive the hepatitis A vaccine or IG and letters will be prepared to send home with the children.

If you have additional questions about hepatitis A, please contact:

_____-

Letter for Daycare Director

Date

Dear Parent and Daycare Staff,

A case of hepatitis A has been diagnosed in a close contact of this daycare center. Hepatitis A is a virus that can cause fever, weakness, loss of appetite, nausea, abdominal discomfort, and jaundice (yellow skin and eyes). The virus is shed in the stool of infected persons and is easily transmitted among children, especially those in diapers. Infants and young children with hepatitis A often have no symptoms, but may still spread the disease to others such as household members.

The Alabama Department of Public Health recommends that children and staff of the daycare center, identified by Public Health, receive an injection of hepatitis A vaccine or Immune Globulin (IG) to prevent further spread of hepatitis A. For your convenience, a nurse from the county health department will administer the hepatitis A vaccine here at the center on _____.

Please read the attached information and return it by this date. Alternatively, you may take your child to your healthcare provider for treatment. If so, you must bring a note from the doctor stating that hepatitis A vaccine or IG has been given.

If you have questions, please call you physician or the county health department.

Sincerely,

Hepatitis A: Information for Food Handlers

What is hepatitis A?

Hepatitis A (formerly known as infectious hepatitis) is a liver disease caused by the hepatitis A virus. Hepatitis A is a fairly common virus which is shed in the stool of infected persons.

What are the symptoms of hepatitis A?

Symptoms include onset of fever, tiredness, loss of appetite, nausea, abdominal discomfort, dark urine, and jaundice (yellowing of the skin and eyes). Some people have no symptoms at all. Less than half of those infected with hepatitis A will become ill, and in most cases the virus is spread before symptoms occur.

Why is hepatitis A of concern to food handlers?

Food handlers with hepatitis A have caused outbreaks of hepatitis A. The person infected with the virus can spread it from two weeks before the onset of jaundice to up to one week after the first symptoms appear. If an infected person does not properly wash his/her hands after using the restroom, food may become contaminated. If this food is not cooked, persons who eat the contaminated food may become ill in the following several weeks.

How can food establishments prevent hepatitis A outbreaks?

Scrupulous handwashing, while important at all times, is crucial after using the restroom and before and during food preparation. Good handwashing will prevent contamination of food.

What if a fellow employee has hepatitis A?

Proper handwashing for **all** employees is extremely important. Employees with hepatitis A are not recommended to work until the county health department says that they may return, usually one week after the onset of jaundice. The health department recommend that employees who work in a capacity that does not involve food preparation.

The health department will investigate and make recommendations for treatment of employees and contacts, which may include the administration of hepatitis A vaccine or immune globulin.

Protocol for Contacts of Persons with *Neisseria meningitidis**

I. Purpose

The purpose of this protocol is to ensure that county health department nurses are able to conduct case investigations and appropriately provide prophylaxis to contacts of persons with ***Neisseria meningitidis*.**

Primary investigation of cases is the responsibility of the Area Surveillance Nurse.

II. Contact Requirements for Dispensing Prophylaxis

Before prophylaxis is given to a contact, **both** of the following must be true: (a) there is evidence that the case has invasive infection with *Neisseria meningitidis* (b) the contact has a risk of meningococcal disease sufficient to warrant prophylaxis.

A. Appropriate documentation that the case has invasive infection *Neisseria meningitidis*. Patient must meet one of the following:

1. A positive culture for *Neisseria meningitidis* (gram-negative diplococcus) from a normally sterile site which includes blood, cerebrospinal fluid (CSF), or joint, pleural, or pericardial fluid. Antigen test results in urine or serum are unreliable for diagnosing meningococcal disease.

2. Gram stain of the CSF, buffy coat of the blood or smears from petechaie shows gram-negative diplococci.

3. The case has a petechial or purpuric rash, or the presence of purpura fulminans, **and** one of the following:
   a. the diagnosis of meningitis or meningococcemia by a physician;
   b. death;
   c. patient hospitalized in the intensive care unit;
   d. patient had a lumbar puncture performed.

B. Period of communicability

Communicable until live meningococci are no longer present in discharges from nose and mouth. Incubation period is 2-10 days, commonly 3-4 days.

*Note: In addition to meningitis, meningococcal disease can also occur as a bloodstream infection that may or may not be accompanied with sepsis. Signs of sepsis include leukocytosis, rash, malaise, weakness, headache and hypotension.

C. Recommendation for Prophylaxis:

1. If the contact meets at least **one** of the following:
   a. Household member;
   b. Person who frequently slept or ate in the same dwelling as the index patient during 7 days before onset of illness;
   c. Member of the same day care center classroom as the case during the 7 days before onset of illness;
   d. Direct exposure to patient's secretions through kissing or through other markers of close social contact (sharing toothbrushes or eating utensils) during the 7 days before onset of illness; (The Division of Epidemiology should be consulted to determine if any school contacts are candidates for rifampin prophylaxis.)
   e. Airline passenger seated directly next to the patient during flight lasting more than 8 hours;
   f. Health care worker exposed to direct unprotected suctioning or respiratory therapy to the patient or who performed mouth-to-mouth resuscitation on the patient. (Hospital personnel are treated and followed by the hospital infection control practitioner or employee health nurse.)

2. Prophylaxis before hospital discharge is recommended for the case if antimicrobial agents other than cefotaxime (Claforan), ceftriaxone (Rocephin) or ciprofloxacin (Cipro) were used for treatment of invasive meningococcal disease.

IV. Dispensing of Prophylaxis

Prophylaxis should be started as soon as possible preferably within 24 hours of diagnosis of the primary case. Most cases of disease in contacts occur 3-4 days after exposure.

The main role of public health staff is to assure appropriate contacts receive prophylaxis. Generally contacts should receive prophylaxis because their physician has written a prescription and the contact fills the prescription at a pharmacy or physician has administered a single dose as listed below.

Nurses may dispense rifampin to contacts that do not have a physician, whose physician refuses to write a prescription, or who cannot reach their healthcare provider. For those contacts who cannot take pills, try to find a pharmacist who will make an oral suspension. Alternatively, if the parent seems trainable, she can be carefully instructed to put the contents of a capsule into a food such as apple sauce which is fed to the child. Each dose made this way should be prepared just before feeding it to the child. A dosage chart for rifampin prophylaxis is attached.

A. Recommended prophylactic regimens include:

1. Rifampin:
    a. Age <1 mo: 5 mg/kg, p.o. q12h x 2 days
    b. Age ≥1 mo: 10 mg/kg, p.o. q12h x 2 days (maximum of 600mg)

2. Ceftriaxone (Rocephin):
    a. Age <15 y: 125 mg IM in a single dose
    b. Age ≥15 y: 250 mg IM in a single dose

3. Ciprofloxacin age >18 y: 500 mg p.o. in a single dose.

V. Counseling of Contacts Who Are Provided With Prophylaxis

A. Rifampin allergy is a contraindication. Before dispensing, make sure each contact is not allergic to rifampin.

B. Rifampin and Ciprofloxacin should not be taken by pregnant women.

C. Rifampin decreases the efficacy of oral contraceptives. Alternative contraceptive measures should be used while taking this medication.

D. Rifampin causes body secretions to turn red or orange. Contact lenses should not be worn because rifampin may discolor them.

E. Rifampin should be taken on an empty stomach.

F. If a contact develops fever during the 10 days after exposure to the index patient, he should seek medical attention sooner rather than later.

Rifampin Prophylaxis for *Neisseria meningitidis*

Dosage for Infant Less than One Month Old

Weight in Pounds/Kilograms	Dosage of infant less than 1 month old (mg Q12 hours for 2 days)
4-5 pounds (2 kilograms)	10
6-8 pounds (3-4 kilograms)	15
9-14 pounds (5-6 kilograms)	25
15-20 pounds (7-9 kilograms)	40

Dosage for Persons Greater Than or Equal to One Month Old

Weight in Pounds/Kilograms	Dosage (mg Q12 hours for 2 days)
4-5 pounds (2 kilograms)	20
6-8 pounds (3-4 kilograms)	30
9-14 pounds (5-6 kilograms)	50
15-20 pounds (7-9 kilograms)	75
21-28 pounds (10-12 kilograms)	110
29-40 pounds (13-18 kilograms)	150
41-57 pounds (19-25 kilograms)	225
58-73 pounds (26-32 kilograms)	300
74-89 pounds (33-40 kilograms)	375
90-114 pounds (41-51 kilograms)	450
≥ 115 pounds (≥ 52 kilograms)	600

VI. Management of Contacts in a Daycare Facility

If a case of *Neisseria meningitidis* is reported in a daycare center or daycare home, notify the Division of Epidemiology and investigate.

A. Visit the facility and discuss the diagnosis of *Neisseria meningitidis*, its symptoms, and mode of transmission with the director. Give the director a copy of the *Neisseria meningitidis* fact sheet.

B. Instruct the staff to observe all contacts for symptoms. If they occur, staff should refer the contact immediately for medical evaluation.

C. Instruct the director of the facility to inform parents of classroom contacts that a case of *Neisseria meningitidis* has occurred and inform them of ADPH recommendations. A sample letter is attached for these purposes.

D. With consultation from the Division of Epidemiology, determine if children and staff will require chemoprophylaxis and refer them to their private physician if possible. Rifampin may be dispensed to contacts who do not have a private physician.

Meningococcal Disease

What is meningococcal disease?

Meningococcal disease, a severe bacterial illness which affects the bloodstream and/or the meninges (the thin lining covering the brain and spinal cord), is caused by *Neisseria meningitidis*. It is a relatively rare disease which usually occurs as a single isolated event. Clusters of cases or outbreaks can occur but are rare in the United States.

Who gets meningococcal disease?

Anyone can get meningococcal disease, but it is more common in infants and children.

How is meningococcal disease spread?

Neisseria meningitidis is spread by direct contact with discharges from the nose and/or throat of an infected person. Many people carry this germ in their nose and throat without any signs of illness, while others may develop serious disease. Almost everyone carries this germ from time to time. Every community has people who are carrying the germ *Neisseria meningitidis*.

What are the symptoms?

Although most people exposed to *Neisseria meningitidis* do not become seriously ill, some people develop fever, headache, vomiting, stiff neck, and a rash. Up to 25 percent of patients who recover may have chronic damage to the nervous system. This disease is occasionally fatal.

How soon do the symptoms appear after exposure?

The symptoms may appear two to ten days after exposure, but usually occur within five days.

How long is an infected person able to spread the disease?

Infected persons may transmit the disease from the time they are first infected until the bacteria are no longer present in discharges from the nose and throat. The duration varies according to the treatment used.

What is the treatment for meningococcal disease?

Certain antibiotics are very effective in eliminating *Neisseria meningitidis* from the nose and throat and for the treatment of diagnosed cases of the disease.

Should people who have been in contact with a diagnosed case of meningococcal disease be treated?

People who have been in close contact, including household members, intimate contacts, health-care personnel who may have performed mouth-to-mouth resuscitation on the infected person, daycare center playmates, and selective school contacts should be considered for preventive treatment. Since this disease is reportable to the health department, a public health nurse will assure that the appropriate close contacts receive preventative treatment either from a private physician or the health department. Casual contact as might occur in an office or factory setting is not usually significant enough to cause concern. Most school contacts are not at increased risk for developing meningococcal disease.

Is there a vaccine that will prevent meningococcal disease?

There is a vaccine that will protect against some of the strains of *Neisseria meningitidis*. It is recommended for use in outbreak situations and for travel to areas of the world where high rates of disease are known to occur. Meningococcal vaccine is also recommended for college freshmen who live in dormitories and for other undergraduate students wishing to reduce their risk of meningococcal disease.

Letter for Daycare Director

Date

Dear Parent and Daycare Staff,

Recently a child who attends this daycare facility developed meningococcal disease, a severe bacterial infection of the blood or meninges (a thin membrane covering the brain and spinal cord). Meningococcal disease is relatively rare and usually occurs as a single isolated event, but occasionally will occur in a close contact through person-to-person spread. The bacteria that cause meningococcal disease, *Neisseria meningitidis*, is carried in the nose and throat of many people who show no signs of illness, while others may develop serious illness.

The Division of Epidemiology, Alabama Department of Public Health, recommends that close contacts of the case, including household and daycare contacts, receive preventive therapy with the antibiotic rifampin. Rifampin cannot be given to people who are allergic to it or to pregnant women.

Please notify your child's physician immediately about of this exposure to meningococcal disease and the recommendations of the health department. You should request that your physician prescribe rifampin or other appropriate antibiotic for your child. If you do not have a physician, please inform your local public health nurse so that arrangements can be made to provide antibiotics to your child.

If your child shows signs of infection with *Neisseria meningitidis* (fever, headache, nausea, vomiting, stiff neck or unusual sleepiness), seek medical attention immediately.

If you have questions about meningococcal disease, please call your doctor or the county health department.

Sincerely,

Viral Meningitis

What is viral meningitis?

Viral meningitis is an infection of the meninges (a thin covering of the brain and spinal cord) that is cause by viruses. It is fairly common disease and most symptomatic cases occur as single, isolated events. Most infected people show no symptoms.

Which viruses cause this form of meningitis?

Approximately half of the cases of viral meningitis in the United States are due to common intestinal viruses. Occasionally, children will have viral meningitis associated with mumps or herpes virus infection. Mosquito-borne viruses also account for a few cases each year. In many cases, the specific virus cannot be identified.

How are the viruses spread?

The manner in which the virus is spread depends upon the type of virus involved. Intestinal viruses are spread through contact with stool and saliva, mumps and herpes through saliva, and mosquito-borne viruses by mosquitoes.

Who gets viral meningitis?

Anyone can get viral meningitis, but it occurs most often in children.

What are the symptoms?

The symptoms of viral meningitis may include fever, headache, stiff neck and fatigue. Rash, sore throat, and intestinal symptoms may occur as well.

How soon after exposure do symptoms appear?

Symptoms usually appear within one week of exposure to the virus.

Is viral meningitis contagious?

Intestinal viruses, mumps, and herpes are contagious, while mosquito-borne viruses cannot be spread from person to person. Most people exposed to these viruses do not experience symptoms, or they are mild. Most people are exposed to the viruses that cause meningitis at some time in their lives, but few actually develop meningitis.

How is viral meningitis treated?

There are no specific medicines used to treat viral meningitis.

Rabies Vaccination Protocol

This Rabies Vaccination Protocol replaces all previous policies related to administration of rabies vaccine, specifically Policy 03-28. County health departments, in cooperation with Area Administration, may elect to provide county-purchased rabies vaccine to persons at risk for exposure to rabies. In some cases, post-exposure prophylaxis may also be offered. For more information about rabies, please see the Epidemiology Division Rabies Control and Bite Manual, http://www.adph.org/epi/assets/RabiesBiteManual.pdf.

I. Pre-exposure Vaccination

A. Eligible Recipients:

i. Laboratory workers who handle rabies specimens, spelunkers, veterinarians, veterinary technicians, kennel workers, and animal-control and wildlife personnel; and

ii. Persons whose vocational or recreational pursuits (e.g., trappers, raccoon hunters, and taxidermists) result in frequent contact with stray dogs and cats, foxes, raccoons, bats, or other frequent carriers of rabies.

Note: Persons seeking rabies vaccination for international travel should be referred to a county clinic that is designated as an international clinic site. A list of county health department travel clinics may be found in the International Travel section of the Immunization Resource Manual located in each county health department.

B. Pre-exposure Vaccination Schedule

Dose Sequence	Vaccine	Dose and Route	Dose Interval
First	Imovax or RabAvert	1 mL IM	Day 0
Second			7 days after 1st dose
Third			21 or 28 days after 1st dose
Routine Booster			If titer is <1:25 or <0.5 IU

II. Post-exposure Vaccination

A. County health department nurses may administer emergent first-aid but may NOT administer rabies immune globulin or the initial dose of post-exposure rabies vaccination. Persons who present with an animal bite or possible exposure to rabies should be referred to a private physician or emergency room.

B. On rare occasions, nurses may administer remaining doses in the rabies immunization series with a prescription from the attending physician after consultation with the Area/Local Health Officer or the Assistant State Health Officer for Disease Control and Prevention.

C. Post-exposure Vaccination Schedule*

Not Previously Vaccinated	Dose Sequence	Vaccine	Dose and Route	Dose Interval
	First	Imovax or RabAvert	1 mL IM	Day 0
	Second			3 days after 1st dose
	Third			7 days after 1st dose
	Fourth			14 days after 1st dose
Previously Vaccinated	First			Day 0
	Second			3 days after 1st dose

*http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5902a1.htm?s_cid=rr5902a1_e

III. Vaccine Information

A. Imovax:

Imovax, manufactured by *sanofi pasteur*, is a human diploid cell vaccine. It is supplied in a single dose vial containing lyophilized vaccine that is reconstituted with the accompanied diluent to a volume of 1 mL for intramuscular administration (please follow specific instructions for reconstitution found in the package insert). For more information, contact *sanofi pasteur* at 1-800-vaccine (822-2463).

There are no specific contraindications to Imovax. However, this vaccine contains trace amounts of albumin, neomycin, and phenol and should be used with caution in persons with hypersensitivity to any of these components. There are no contraindications to post-exposure vaccination with Imovax.

In the case of pre-exposure vaccination, immune complex-like reactions (e.g., arthralgia, arthritis, angioedema, nausea, vomiting, fever, and malaise) have occurred in persons receiving booster doses of Imovax. If a patient with this type of reaction requires additional booster doses of rabies vaccine, RabAvert should be used.

B. RabAvert:

RabAvert, manufactured by *Novartis*, is a purified chick embryo cell vaccine. It is supplied in a single-dose vial containing lyophilized vaccine that is reconstituted in the vial with the accompanying diluent to a volume of 1 mL for intramuscular administration (please follow specific instructions for reconstitution found in the package insert). For more information, contact *Novartis* at 1-877-683-4732.

RabAvert contains processed bovine gelatin, chicken protein, neomycin, chlortetracycline, and amphotericin B in trace amounts. If the patient has had an anaphylactic reaction to one of these vaccine components, Imovax should be used instead. RabAvert should not be used in persons with a history of anaphylaxis to eggs. However, there are no contraindications to post-exposure vaccination with RabAvert.

IV. Post-Vaccination Serology

Serologic testing following rabies vaccination is recommended according to risk category. A booster dose of rabies vaccine is indicated if the antibody titer is below the testing laboratory's minimal specified titer needed for immunity. Please refer to the attached table, "Rabies Pre-exposure Prophylaxis Guide." Health department nurses may draw blood for antibody titer testing. Laboratories that have rabies titer testing ability are listed below. Health department personnel should call one of the two laboratories prior to drawing the specimen to determine the type of sample needed (e.g., whole blood or serum). There is a fee for testing at both of these laboratories, so arrangements for payment of the lab should be made by the patient. The Alabama Department of Public Health does not endorse either of these laboratories. Choice of laboratory should be made by the patient and the nurse at the time the specimen is drawn. Available laboratories include:

A. Rabies Laboratory/RFFITMosier Hall
Kansas State University
1800 Denison Avenue
Manhattan, KS 66506-5600
Telephone: 785-532-4483
Web Address: www.vet.k-state.edu/depts/rabies

B. Atlanta Health Associates, Inc.
309 Pirkle Ferry Road, Suite D300
Cumming, GA 30040

Telephone: 1-800-717-5612
Web Address: www.atlantahealth.net

Rabies Pre-Exposure Prophylaxis Guide[1]

Risk Category	Nature of Risk	Typical Populations	Vaccine and Antibody Titer Recommendations
Continuous	Rabies virus is present continuously, often in high concentrations. Specific exposure is likely to go unrecognized but may be from a bite, nonbite, or aerosol exposure.	Rabies research laboratory workers; rabies biologics production workers.	Should receive the primary course of vaccine. Serologic testing should be done every 6 months. Booster vaccination is indicated if the antibody titer falls below 1:5 or below 0.5 IU.
Frequent	Exposure usually episodic, with source recognized, but exposure might be unrecognized. Exposure may be from a bite, nonbite, or aerosol exposure.	Rabies diagnostic laboratory workers, spelunkers, veterinarians and their staff, and animal-control and wildlife workers in rabies-enzootic areas. All persons who frequently handle bats.	Should receive the primary course of vaccine. Serologic testing should be done every 2 years. Booster vaccination is indicated if the antibody titer falls below 1:5 or below 0.5 IU.
Infrequent (greater than the population at large)	Exposure nearly always episodic with source recognized. Exposure is by a bite or nonbite.	Veterinarians and animal-control workers in areas with low rabies rates, veterinary students, and travelers[2] visiting areas where rabies is enzootic and immediate access to appropriate medical care, including biologics, is limited.	Should receive the primary course of vaccine. No serologic testing or booster vaccination is indicated.
Rare (population at large)	Exposure always episodic with source recognized. Bite on nonbite exposure.	US population at large, including persons in rabies-epizootic areas.	No vaccination necessary.

1. Modified form Morbidity and Mortality Weekly Report, “Human Rabies Prevention-United States, 2008,” (May 23, 2008/Vol. 57/No.RR-03), http://www.adph.org/epi/assets/RabiesBiteManual.pdf.

2. Persons seeking rabies vaccination for international travel should be referred to a county clinic that is designated as an international clinic site. A list of county health department travel clinics may be found in the International Travel section of the Immunization Resource Manual located in each county health department.