Hepatitis B at a Glance

Hepatitis B Screening:

1. Anti-HBs (\(\checkmark\) one)
   - Negative
   - Positive; Note if positive, patient is immune.
   - Indeterminate
   - Results pending
   - Not done

2. HBsAg (\(\checkmark\) one)
   - Negative
   - Positive
   - Indeterminate
   - Results pending
   - Not done

Note: if positive HBsAg, patient is infected with HBV and infectious to contacts. It is especially important to screen all household contacts.

If positive HBsAg, were all household contacts screened?  ___Yes ___No

3. Anti-HBc (\(\checkmark\) one)
   - Negative
   - Positive
   - Indeterminate
   - Results pending
   - Not done

- Determine hepatitis B virus (HBV) infection status for all refugees, both adults and children.
- Vaccinate previously unvaccinated and susceptible children and adults.
- To avoid missing opportunities for vaccination, give all children the first dose of hepatitis B vaccine at their first visit. If serologic test results indicate immunity or chronic infection, no additional vaccine doses should be given.
- Current hepatitis B vaccination recommendations include universal vaccination of infants beginning at birth, routine vaccination of previously unvaccinated children and adolescents, and vaccination of previously unvaccinated adults at increased risk of infection. See A Comprehensive Immunization Strategy to Eliminate Transmission of Hepatitis B Virus Infection in the United States: Recommendations of the Advisory Committee on Immunization Practices from the Center for Disease Control in the appendix at the end of this section.
- Screen all women early in each pregnancy for HBV infection. If the patient is high risk, repeat screening test later in the pregnancy. This should be done for each pregnancy as the reporting will assure proper follow-up for every infant born to an HBV-infected mother.
- Persons with chronic HBV infection should receive ongoing medical care including periodic liver function tests and possible treatment. A referral to primary care should be arranged.
• Hepatitis B is a reportable disease per Minnesota Rules Governing Communicable Diseases. Both acute and chronic infections with HBV should be reported to the Minnesota Department of Health (MDH).
• Reporting is required of both health care providers and laboratories.

Key Resources

MDH, Viral Hepatitis Surveillance
651-201-5414
877-676-5414 (toll free)
www.health.state.mn.us/hepatitis

MDH, Perinatal Hepatitis B Prevention Program
651-201-5557

CDC
A Comprehensive Immunization Strategy to Eliminate Transmission of Hepatitis B Virus Infection in the United States: Recommendations of the Advisory Committee on Immunization Practices from the Center for Disease Control
Part II, Adults: www.cdc.gov/mmwr/PDF/rr/rr5516.pdf

Recommendations for Identification and Public Health Management of Persons with Chronic Hepatitis B Virus Infection. www.cdc.gov/mmwr/preview/mmwrhtml/rr5708a1.htm
Hepatitis B

Purpose

To detect HBV infection and to identify and vaccinate refugees in accordance with CDC recommendations. All infected persons should be referred for appropriate follow-up medical care, and their household contacts should be screened and, if susceptible, vaccinated.

Background

HBV infection is highly endemic in all of Africa, Southeast Asia, East Asia, and Northern Asia, and in most of the Pacific Islands. A complete list of HBV endemicity by country is available at wwwnc.cdc.gov/travel/yellowbook/2012/chapter-3-infectious-diseases-related-to-travel/hepatitis-b.htm

According to the CDC, the prevalence of chronic HBV infection among persons immigrating to the United States from these areas is estimated to be between 5 and 15 percent, and reflects the patterns of HBV infection in the countries and regions of origin. Intermediate and high endemicity are defined by CDC as 2 to 7 percent and >8 percent of population infected, respectively.

In the United States, approximately 800,000 to 1.4 million persons are chronically infected with HBV. An estimated 3,000 persons with chronic HBV infection die in the U.S. each year as a result of chronic liver disease (cirrhosis and liver cancer).
Information Summary

The information that follows is a summary of pertinent information about hepatitis B. This summary is designed to assist the health care provider in screening for and determining HBV infection status as part of the *Minnesota Initial Refugee Health Assessment* and in diagnosing and treating hepatitis B in the event that the screening test is positive.
Screening

- Screen all refugees, both adults and children. Screen all women early in each pregnancy for HBV infection.
- Order:
  - HBsAg (hepatitis B surface antigen; a positive test indicates acute OR chronic infection)
  - Anti-HBs (antibody to hepatitis B surface antigen; a positive test indicates immunity due to natural infection)
  - Anti-HBc (antibody to hepatitis B core antigen ["core antibody"]; a positive test indicates natural infection [acute, chronic, or resolved]).

The combination of results of these three tests allows health care providers to determine whether the individual has acute or chronic HBV infection, is immune, or susceptible.

- A positive HBsAg test result indicates that the patient is currently infected with HBV. HBV infection may be acute or chronic. Symptoms of HBV infections tend to be insidious or asymptomatic. Acute HBV infection is a newly acquired infection. Chronic HBV infection is defined as an HBV infection that persists for at least six months.
- For serologic markers for hepatitis B see the appendix at the end of this section. Interpretation of Hepatitis B Serologic Test Results www.cdc.gov/hepatitis/HBV/PDFs/SerologicChartv8.pdf
- Check the MDH website for updates on the most current recommendations for screening protocol at www.health.state.mn.us/refugee.
Hepatitis B Disease

Hepatitis B is a viral infection of the liver. HBV infection may be acute or chronic. Acute HBV infection is a newly acquired infection. Acute infections may resolve, and the individual will be immune to hepatitis B. Acute infections may, however, become chronic. HBV infections are more likely to become chronic if the infection is acquired perinatally (90 percent), or in early childhood (25 to 50 percent). By adulthood, the risk of an acute HBV infection becoming chronic is approximately 5 percent.

Chronic HBV infection is defined as an HBV infection that persists for at least six months. It is generally lifelong (although a small percentage of chronic infections resolve), and is generally asymptomatic, but eventually may lead to chronic liver disease including cirrhosis and hepatocellular carcinoma. Death from chronic liver disease occurs in 15 to 25 percent of chronically infected persons. Chronically infected persons should be considered infectious. Persons with chronic HBV infection should receive ongoing medical care including periodic liver function tests and possible treatment. A referral to primary care should be arranged.

Symptoms

Chronic HBV infections tend to be insidious or asymptomatic. In acute infections, only about 30 to 50 percent of adults and 10 percent of children have symptoms. Symptoms of acute hepatitis include fever, tiredness, loss of appetite, nausea, abdominal discomfort, dark urine, and jaundice. Liver function tests will also be elevated in acute infections and may be elevated in chronic infections.

Diagnosis

To determine hepatitis B infection status, all newly arrived refugees should have the following serologic tests performed:

- HBsAg (hepatitis B surface antigen; a positive test indicates acute OR chronic infection)
- Anti-HBs (antibody to hepatitis B surface antigen; a positive test indicates immunity due to natural infection)
- Anti-HBc (antibody to hepatitis B core antigen [“core antibody”]; a positive test indicates natural infection [acute, chronic, or resolved]).

The combination of results of these three tests allows health care providers to determine whether the individual has acute or chronic HBV infection, is immune, or susceptible.

- Reporting is required of both health care providers and laboratories.
- Reports may be made by mail or fax using an MDH Disease Report Card (“Yellow Card”). MDH hepatitis epidemiologists will then contact the health care provider to
collect additional information to complete the report. Alternatively, the health care provider may contact MDH epidemiologists by phone at 651-201-5414 or 1-877-676-5414 (toll free) to report.

**Treatment**
There is no cure for HBV infection, which highlights the importance of prevention. Treatment for acute HBV is supportive. Several treatments are available for chronic HBV infection.

**Risk Reduction**

HBV is transmitted by parenteral or mucosal exposure to blood or other body fluids from persons with acute or chronic HBV infection. The highest concentrations of HBV are found in blood, vaginal fluid, semen, and saliva; low titers are found in other body fluids. Worldwide, most infections occur from infected mother to child, from child-to-child contact in household settings, and from reuse of unsterilized needles and syringes. The infection may also be acquired by sharing personal items such as razors, toothbrushes, and nail care implements with someone who is HBV-infected. HBV is not transmitted via the fecal-oral route. To prevent or reduce the risk for transmission to others, hepatitis B positive persons should use methods (e.g., condoms) to protect nonimmune sex partners from acquiring HBV infection from sexual activity until the sex partners can be vaccinated and immunity documented.

**Teach your patient about risk reduction measures**

- Cover all cuts and open sores with a bandage.
- Throw away used personal items such as tissues, menstrual pads, or tampons.
- Wash your hands well after touching blood or body fluids.
- Clean up blood spills using appropriate personal protective equipment; clean the area with a bleach solution (one part bleach and nine parts water).
- Do not share toothbrushes, razors, needles for ear piercing, earrings, nail files, nail clippers, scissors, or anything that may come in contact with blood or body fluids.

HBV-infected persons should be encouraged to inform their health care providers about their HBV status.

Sexual partners of persons with acute or chronic HBV infection should be tested and, if susceptible, offered hepatitis B vaccine and repeat testing in one to two months. Susceptible partners exposed within the previous 14 days should be tested and offered both hepatitis B vaccine and immune globulin (HBIG). Susceptible sexual partners should be encouraged to use condoms until after post vaccination serology.
Vaccination

Consistent with the CDC, current hepatitis B vaccination recommendations from the Minnesota Department of Health include universal vaccination of infants beginning at birth, routine vaccination of previously unvaccinated children and adolescents, and vaccination of previously unvaccinated adults at increased risk of infection. See reference for *A Comprehensive Immunization Strategy to Eliminate Transmission of Hepatitis B Virus Infection in the United States: Recommendations of the Advisory Committee on Immunization Practices from the CDC* in the appendix at end of this section.
Refugee and immigrant children

- All children should be vaccinated in accordance with standard recommendations.
- The Minnesota School Immunization Law requires documentation of hepatitis B vaccination (or legal exemption) prior to school entry and prior to grade seven. More detailed information on school requirements is posted on the MDH website at www.health.state.mn.us/divs/idepc/immunize/laws/index.html#basics.
- To avoid missing opportunities for vaccination give all children the first dose of HBV at their first visit. If serology shows immunity or chronic infection, no further doses are needed.

Refugee and immigrant adults

- Susceptible adults at increased risk for hepatitis B infection should be vaccinated in accordance with standard recommendations. Risk factors include sexual contact with an HBV-infected person, injecting drug use, occupational exposures, and medical procedure-related exposures. Risks are increased during travel to HBV endemic areas.

Perinatal Hepatitis B Transmission

The national Advisory Committee on Immunization Practices (ACIP) recommends that all pregnant women be tested for HBV infection with each and every pregnancy. All pregnant women should be tested for HBsAg as part of their prenatal profile. “For a newborn infant whose mother is positive with hepatitis B, the risk of developing chronic HBV infection can be as high as 70 to 90 percent by age 6 months in the absence of postexposure immunoprophylaxis. Approximately 25 percent of infants and older children who acquire chronic hepatitis B infection die prematurely from HBV-related hepatocellular carcinoma or cirrhosis. Treatment initiated within 12 hours after birth is up to 95 percent effective at preventing this serious infection.”

Because the risk of chronic hepatitis B virus infection is higher when infection occurs at an early age, it is very important to prevent infections in infancy and early childhood.

To prevent perinatal transmission

- Screen all pregnant women within first trimester of each pregnancy, even if tested before or had hepatitis B vaccines. If the patient is high risk, repeat screening test later in the pregnancy. Send a copy of the lab report with the HBsAg-positive results to the hospital of delivery and the infant’s health care provider.
- Screen all household and sexual contacts of HBsAg-positive mothers for anti-HBs and HBsAg. Vaccinate susceptible contacts. Refer or provide HBsAg-positive women counseling and medical management.
• Report to MDH all HBsAg-positive women within one working day of knowledge of the pregnancy. Contact the MDH Perinatal Hepatitis B Program at 651-201-5557, 651-201-5511, or 877-676-5414 (toll free) with questions about perinatal hepatitis B prevention.

**Case management of infants born to HBsAg-positive mothers**

• Complete hepatitis B vaccine series at 1-2 months and 6 months of age (using monovalent vaccine). If using a combination hepatitis B vaccine (e.g., Pediarix or Comvax), final dose should NOT be administered before age 24 weeks (164 days). Administration of four doses of hepatitis B vaccine is permissible when giving combination vaccines after the birth dose. Report all vaccine dates to the local and/or state health department.

• Perform post-vaccination serology at 1-2 months after the last dose. (No earlier than 9 months of age.) Test for both HBsAg and anti-HBs. If the infant does not respond to the vaccine (is anti-HBs negative) and is not positive for infection (is HBsAg negative), the infant is still susceptible and needs to receive a second three-dose series of HBV vaccine on a zero-, one-, and four-month schedule. Of initial non-responders who receive another three-dose series of vaccine, 30 to 50 percent will develop an adequate response. Evaluate treatment options if the infant is HBsAg-positive.

**Interpretation of infant serology results**

<table>
<thead>
<tr>
<th>Result</th>
<th>Follow-up needed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anti-HBs positive</td>
<td>None. Infant is protected.</td>
</tr>
<tr>
<td>HBsAg negative</td>
<td></td>
</tr>
<tr>
<td>Anti-HBs negative</td>
<td>No response. Infant is susceptible to infection.</td>
</tr>
<tr>
<td>HBsAg negative</td>
<td>Repeat hepatitis B monovalent vaccine series using an accelerated schedule of zero, one, and four months. Recheck serology one to two months after last dose.</td>
</tr>
<tr>
<td>Anti-HBs negative</td>
<td>Infant infected with hepatitis B. Consult with liver specialist for follow-up and ongoing care.</td>
</tr>
<tr>
<td>HBsAg positive</td>
<td></td>
</tr>
</tbody>
</table>

Remember to report HBsAg-positive test results to local and/or state health department.

• Because the risk of chronic hepatitis B virus infection is higher when infection occurs at an early age, it is very important to prevent infections in infancy and early childhood. Also see: www.health.state.mn.us/divs/idepc/diseases/hepb/perinatal/basics.html