

Hepatitis B (Acute, Chronic and Perinatal) Investigation Guideline

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Hepatitis B (Acute, Chronic, Perinatal) Disease Management and Investigation Guidelines

CASE DEFINITION – Acute (CDC, 2000)

A. Clinical Description for Public Health Surveillance (Acute):

An acute illness presenting with a) discrete onset of symptoms (such as nausea, vomiting, abdominal pain and diarrhea) **and** b) jaundice or elevated serum aminotransferase levels.

B. Laboratory Criteria for Case Classification (Acute):

- IgM antibody to hepatitis B core antigen (anti-HBc) positive or hepatitis B surface antigen (HBsAg) positive
- IgM anti-HAV negative (if done).

C. Case Classification (Acute):

- Confirmed: A case that meets the clinical case definition and is laboratory confirmed.
 - Probable: Laboratory result with positive IgM antibody to hepatitis B core antigen case and missing or incomplete clinical information. (KDHE definition for data management; needs further investigation.)
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CASE DEFINITION – Chronic (CDC, 2007)

A. Clinical Description for Public Health Surveillance (Chronic):

Persons with chronic infection may have no evidence of liver disease or may have a spectrum of disease ranging from chronic hepatitis to cirrhosis or liver cancer. Persons with chronic infection may be asymptomatic.

B. Laboratory Criteria for Case Classification (Chronic):

- IgM antibodies to hepatitis B core antigen (anti-HBc) negative AND a positive result on one of the following tests: hepatitis B surface antigen (HBsAg), hepatitis B e antigen (HBeAg), or hepatitis B virus (HBV) DNA positive; or
- HBsAg positive or HBV DNA positive or HBeAg positive two times at least 6 months apart (Any combination of these tests performed 6 months apart is acceptable.)

C. Case Classification (Chronic):

- Confirmed: A case that meets either laboratory criteria for diagnosis.
- Probable: A case with a single HBsAg positive or HBV DNA positive or HBeAg positive lab result when no IgM anti-HBc results are available.

Note: Laboratory tests indicative of chronic HBV infection are often performed simultaneously on the same patient specimen as part of a “hepatitis panel” which may lead to seemingly discordant results.

For this case definition, any positive result among the three laboratory tests mentioned above is acceptable, regardless of other testing results.

Negative HBeAg results and HBV DNA levels below positive cutoff level do not confirm the absence of infection.

CASE DEFINITION – Perinatal (CDC, 1995)

A. Clinical Description for Public Health Surveillance (Perinatal):

Perinatal hepatitis B in the newborn may range from asymptomatic to fulminant hepatitis.

B. Laboratory Criteria for Case Classification (Perinatal):

- Hepatitis B surface antigen (HBsAg) positive).

C. Case Classification (Perinatal):

- Confirmed: HBsAg positivity in any infant aged >1 to 24 months who was born in the United States or in U.S. territories to HBsAg-positive mother.

D. Laboratory Testing:

- Collection: Use a Serology Kit, Multi-tube Mailing Box with Yellow Top Blood Tubes
- Specimen: Serum
- Amount: 3-5 ml.
- Remarks: It is not required that specimens are forwarded to the Kansas Health and Environment Laboratories, but they are equipped to test for hepatitis B serology. It is available on a limited basis for diagnosis of acute and chronic disease among clients of local health departments and some state-operated facilities. Emphasis is placed on testing prenatal patients and household and sexual contacts of any HBsAg positive clients.
- For additional information and/or questions concerning specimen submission, collection/transport and laboratory kits call (785) 296-1620 or refer to online guidance at www.kdheks.gov/labs/packaging_and_shipping.html or http://www.kdheks.gov/labs/lab_ref_guide.htm .

E. Bioterrorism Potential: None.

F. Outbreak Definition:

There are no formal outbreak definitions; however, the investigator may consider the possibility of an outbreak when ≥ 2 cases are clustered in time and/or space or when the epidemic threshold is exceeded for the community.

INVESTIGATOR RESPONSIBILITIES

A. Investigation Related Tasks and Activities:

- 1) Confirm diagnosis with appropriate medical provider
 - Before contacting the patient, discuss with the health care provider what the patient has been told about his/her evaluation for disease.
 - Determine if the case has acute or chronic infection.
 - Obtain information that supports clinical findings in case definition and an onset date for an acute infection.
 - Obtain information on laboratory tests performed and results.

- (1) For probable acute HBV with no jaundice, obtain serum aminotransferase levels (i.e. AST or SGOT; ALT or SGPT).
- (2) For probable chronic HBV with only a single HBsAg test available, determine if previous testing occurred ≥ 6 months prior to the laboratory report. (i.e. HBsAG, HBV DNA positive or HBeAg) or encourage or coordinate testing for IgM to anti-HBc on the original specimen or HBsAg testing > 6 months after the original testing.
 - If case is a female, determine if she is pregnant.
 - If patient hospitalized, obtain medical records, including admission notes, progress notes, lab report(s), and discharge summary.
- 2) For acute infections, investigate to identify potential source of infection
- 3) For all cases, investigate to locate additional cases and / or contacts.
 - Determine if case may have exposed others or may do so in the future.
 - Review immunization status of cases and/or contacts.
 - Follow-up with acute HBsAg positive individuals with testing in 6 months to determine if the acute infection evolved into a chronic carrier state.
- 4) Initiate control or prevention measures to prevent further spread of disease.
 - Provide education that includes basic information about the disease and way to prevent transmission of illness.
 - Recommend appropriate testing, immunization and / or prophylaxis measures to cases and contacts.
 - If the case is pregnant:
 - Follow-up with OB/GYN to ensure that HBIG and vaccine are given to the infant at birth.
 - Follow-up with infant's pediatrician to assure that subsequent vaccine doses are given and that the infant is tested 3-9 months after completion of the series to test for immunity and/or carrier status.
- 5) Report all acute, chronic, and perinatal cases to the KDHE Office of Surveillance and Epidemiology, using established methods.

B. Notifications:

- A pregnant woman positive for HBsAg must be reported with each pregnancy to the Kansas Perinatal Hepatitis B Prevention Program by phone at 785- 368-8208.
- As appropriate, use the notification letter and the disease fact sheet to notify the case, contacts and other individuals or groups.

EPIDEMIOLOGY

Hepatitis B virus (HBV) is a major cause of chronic liver disease and cancer worldwide. In the United States and other developed countries, the infection rate is low, with the highest rate of disease in 20-49-year-olds. The number of new infections per year has declined from an average of 260,000 in the 1980s to about 60,000 in 2004. The greatest decline has happened among children and adolescents due to routine hepatitis B vaccination. There are an estimated 1.25 million chronically infected Americans, of whom 20-30% acquired their infection in childhood. The highest risk of childhood infections is among children born to HBV

positive mothers. Persons at increased risk for Hepatitis B include:

- Persons with multiple sex partners or a sexually transmitted disease
- Men who have sex with men
- Sex contacts of infected persons
- Injection-drug users
- Household contacts of chronically infected persons
- Infants born to infected mothers
- Infants/children of immigrants from areas with high rates of HBV infection
- Health-care and public safety workers with exposure to blood
- Hemodialysis patients

DISEASE OVERVIEW

A. Agent:

The hepatitis B virus is a DNA hepadnavirus.

B. Clinical Description:

Infection with HBV may result in acute or chronic disease, both of which may be asymptomatic. If symptoms are present, onset is usually subtle with loss of appetite, vague abdominal discomfort, nausea, vomiting and sometimes arthralgia and rash often progressing to jaundice. Fever may be absent or low-grade. Liver enzyme levels are markedly elevated. Severity ranges from unapparent to fatal cases. Disease tends to be worse and mortality higher in those >60 years old. Asymptomatic infections are common in children < 5 years of age. The risk of chronic infection decreases with age. As many as 90% of infants infected at birth develop chronic infection, compared to an average of 30% of those infected between 1-5 years of age and 2-6% of those acquiring infection as older children or adults. Chronically infected persons are at increased risk for developing chronic liver disease or liver cancer later in life.

C. Reservoirs:

Humans

D. Mode(s) of Transmission:

HBV is transmitted through blood or body fluids. The highest concentrations of the virus are in blood; lower titers are in semen and even lower titers in saliva.

E. Incubation Period:

Range from 45-160 days; average 60-90 days.

F. Period of Communicability:

A person is considered infectious as long as hepatitis B surface antigen (HBsAg) is detectable in the blood. Most people are infectious from 1-2 months before to 1-2 months after the onset of symptoms. Persons who have chronic hepatitis B (i.e., carriers) remain infectious indefinitely. Persons with acute and chronic hepatitis B with circulating hepatitis B e antigen (HBeAg) are more infectious than those that are HBeAg negative.

G. Susceptibility and Resistance:

Protective immunity follows infection if antibody to HBsAg (anti-HBs) develops and HBsAg is negative. After three intramuscular doses of hepatitis B vaccine,

more than 90% of healthy adults and more than 95% of infants, children, and adolescents develop adequate antibody responses. However, there is an age-specific decline in immunogenicity.

H. Treatment

Supportive only during the acute phase. Persons who have chronic HBV infection require medical evaluation and regular monitoring.

STANDARD CASE INVESTIGATION AND CONTROL METHODS

Standard investigation activities include the following:

- 1) Confirmation of diagnosis using case definition.
- 2) Collection of demographic data (birth date, county, sex, race/ethnicity).
- 3) Collection of clinical data
 - Illness onset date
 - Jaundice (yes/no),
 - Other symptoms, and
 - Lab results supporting case definition including aminotransferase levels.
- 4) Determination of risk factors (e.g., household contacts, occupational, illicit drug use, sexual orientation, positive HBsAg birth mother); and
- 5) Investigation of epi-links among cases (cluster, household, co-workers, etc).
- 6) Identification of contacts requiring evaluation and post-exposure prophylaxis.

Standard investigation **includes** completion of the General Investigation Form and Viral Hepatitis Supplemental Form. Further investigative activity should include:

A. Acute Case Investigation - Identify Potential Source of Infection:

Focus within the incubation period and on potential source(s) of infection:

- Contact with confirmed or suspect case of acute or chronic hepatitis within 6 weeks -6 months prior to onset. List the name and address of suspect case and note relationship to case (sexual, household, other).
- 6 months before to onset, number of male and/or female sex partners.
- Sexually transmitted disease diagnosis; date of recent treatment.
- During 6 weeks -6 months prior to symptom onset; the case:
 - Injected drugs not prescribed or used street drugs not injected.
 - Received tattoo/body piercing/acupuncture/electrolysis or self-injections (suspected or admitted); specify when and location of provider
 - Had hemodialysis or kidney transplant, dental work or oral surgery or any other surgery; specify when and where
 - Received blood or blood products; specify when and where
 - Received IV infusions and/or injections in an outpatient setting; where
 - Had a stick / puncture with needle or other blood contaminated object
 - Had exposure to someone else's blood; specify
 - Was hospitalized, resident of long-term care, or incarcerated >24 hours
- At-risk occupation, 6 weeks-6 months prior to symptom onset (medical or dental field or public safety worker); note frequency of blood exposure
- Any incarceration for ≥ 6 months during lifetime; most recent, how long
- Case's hepatitis B vaccination history, including post-vaccine antibody titers.
- For infant cases, evaluate HBV status of mother and note location of birth.

B. Contact Investigation * – Identify Exposed Individuals / Populations:

Obtain the following information from the case:

- Names of household members.
- Names of sexual contacts.
- With history of drug use, potential contacts involved with case in activity.

Consider the following types of contacts during the contact investigation:

- Household members of HBsAg positive individuals
- Infants born to HBsAg positive mothers (only if positive at time of birth).
- Infants < 12 months of age with household exposure to a primary caregiver with acute Hepatitis B.
- Individuals with mucosal or percutaneous exposure to infectious body fluid of an infections person.
- Sexual partners of HBsAg positive individuals

* **Note:** Contact notification is well-established in the Kansas STD program; the program's specialists have expertise in reaching the types of contacts identified with HBsAg-positive patients and might be able to provide guidance on procedures and best practices. For further assistance, contact the Director or Assistant Director of the Kansas STD Program at (785) 296-5596.

C. Isolation, Work and Daycare Restrictions

- To prevent exposure to blood and body fluids, universal precautions should be followed. Safe-sex practices reduce risk of sexual transmission.

D. Case Management, Including Follow-up of cases:

- Educate acute case on measures to avoid disease transmission.
- Repeat testing of acute cases for HBsAg should be completed after 6 months to determine the clearance or continued presence of HBsAg.
 - Those still HBsAg positive are considered confirmed chronic carriers.
- Counsel chronic carriers on measures to avoid disease transmission, including risks to newborns, and measures to take to protect the liver.

E. Contact Management, Including Protection of Contacts:

- Evaluate each contact's susceptibility and initiate PEP as soon as possible (preferably within 24 hours). Consider these contacts as susceptible:
 - Unvaccinated contacts,
 - Those who have not completed their hepatitis B series, and
 - Those without documentation of a prior HBV infection or of a response to a completed hepatitis B series; documentation is indicated by:
 - HBsAg positive laboratory reports (for chronic carriers), or
 - Positive report of a protective level of anti-HBs (≥ 10 mIU/mL).

Note: A completed hepatitis B series is protective in most people; but without post-vaccination testing, contacts should receive a booster dose.

- Testing of unvaccinated contacts:
 - Past or present sex partners and household and needle-sharing contacts should be tested for HBsAg and for anti-HBc and/or anti-HBs
 - At the time of testing, contacts should receive an initial hepatitis B

- vaccine with or without immune globulin, as recommended below.
- Contacts determined to be HBsAg-positive are reported and managed as cases and referred for medical care.
 - Contacts testing positive to HBsAg or anti-HBc or with documentation of a protective level of anti-HBs do not require additional PEP.
 - Protection or postexposure prophylaxis (PEP) of susceptible contacts:
 - Both passive-active PEP with hepatitis B immune globulin (HBIG) and hepatitis B vaccination or active PEP with hepatitis B vaccination alone are highly effective in preventing illness after exposure to HBV.
 - PEP initiated >7 days after percutaneous or >14 days after sexual exposure is not considered an effective means of preventing illness from that earlier exposure.
 - However, initiation and completion of a hepatitis B vaccination series will protect against future exposures to hepatitis B and is encouraged for all contacts of both acute and chronic cases.
 - Persons in the process of being vaccinated should complete the vaccine series on schedule and receive a dose of HBIG, if necessary, based on guidelines below.
 - If appropriate, HBIG can be administered simultaneously with hepatitis B vaccine in a separate injection site. (The dose of HBIG is 0.5 ml for newborns and 0.06 ml/kg (maximum of 5 ml) for others.)
 - Both HBIG and hepatitis B vaccine should be given in the following situations:
 - Infants born to HBsAg-positive mothers, within 12 hours of birth
 - Unvaccinated infants whose mothers or primary caregivers have acute hepatitis B.
 - Susceptible contacts with percutaneous or mucosal exposure to HBsAg-positive blood or body fluids that may contain blood, if initial exposure was within 7 days.
 - Susceptible sexual contacts of HBV cases, including victims of sexual assault/abuse, if initial exposure was within 14 days.
 - Postexposure hepatitis B vaccine, alone, should be given in the following situations:
 - Household contacts of persons with HBV. This is assuming that activities which may have resulted in exposure to HBsAg positive blood or body fluids could have occurred greater than 7 days prior.
 - Percutaneous or mucosal exposure to HBsAg-positive blood or body fluids that may contain blood, if initial exposure was >7 days prior.
 - Sexual contacts of persons with HBV infection, if initial exposure was > 14 days prior.
 - Contacts with documentation of a complete hepatitis B series but no post-vaccination testing need a single vaccine booster dose.
 - For all susceptible persons, the hepatitis B vaccine series should be completed using the age-appropriate vaccine dose and schedule.
 - For more information, refer to “A Comprehensive Immunization Strategy to Eliminate Transmission of Hepatitis B Virus Infection in the United States.”

- Provide education on avoiding further exposures and to ensure proper medical care is obtained and precautions taken if symptoms develop.

F. Environmental Measures:

- None, unless a health care or long-term care facility or a facility that provides tattoo, body piercing or cosmetic procedures is implicated in transmission. In which case, an inspection of the facility should be coordinated through the proper regulatory agency.

G. Education:

- Advise persons with acute HBV infection:
 - That their blood and other secretions are infectious to others until the HBsAg has cleared, typically within 2-3 months and
 - To postpone non-emergency dental care and surgery until their viremia has cleared.
- Advise all cases who are HBsAg-positive and/or with acute HBV infection:
 - To notify household, sex, and needle-sharing contacts that they should be tested for markers of HBV infection, vaccinated against hepatitis B, and, if susceptible, completed the vaccine series.
 - That the virus may be transmitted through sexual contact and should be instructed to practice abstinence, use condoms, or otherwise practice safe sex until the sex partners are vaccinated and immunity documented
 - Refrain from donating blood, plasma, tissue, or semen. (Organs may be donated to HBV-immune or chronically infected persons needing a transplant.);
 - Cover cuts or skin lesions to prevent contact with secretions and blood;
 - Refrain from sharing household articles (e.g., toothbrushes, razors, or personal injection equipment) that could be contaminated with blood.
 - Surfaces contaminated with saliva and blood should be cleaned and properly disinfected, but objects potentially contaminated with blood (e.g., razors, toothbrushes) should not be shared with other people.
 - Do not share needles with other people.
 - When seeking medical or dental care, HBsAg-positive persons should be advised to inform those responsible for their care of their HBsAg status so they can be evaluated and their care managed appropriately.
- Pregnant women and chronic female cases should be told about the risk of hepatitis B infection to newborns and of the importance of prophylaxis for such newborns.
- Parents/guardians of HBsAg-positive persons with functional disabilities should be alerted to the risk of HBV infection associated with excessive drooling or aggressive behavior, such as biting and scratching.
- Advise chronic cases on measures to prevent future liver damage.
 - Avoid or limit alcohol consumption because of the effects of alcohol;
 - Refrain from beginning to take any new medicines, including over-the-counter and herbal medicines, without consulting their health-care provider; and
 - Obtain vaccination against hepatitis A if chronic liver disease is present.

MANAGING SPECIAL SITUATIONS

A. Outbreak Investigation:

- Notify KDHE immediately, 1-877-427-7317.
- Active case finding will be an important part of any investigation.

B. Pregnancy or Recent Delivery:

Preventing prenatal transmission is perhaps the most important part of case follow-up. For this reason, the State of Kansas has a Perinatal Hepatitis B Prevention Program (785-296-8156). Case management activities include:

- Within 12 hours of birth, both full term and premature infants with HBsAg-positive mothers should received HBIG (0.5 ml) and the first dose in the hepatitis B vaccination series. Premature infants should NOT be given divided or reduced doses.
- Infants with mothers whose HBsAg status is unknown at the time of delivery should receive the hepatitis B vaccine within 12 hours of birth, perform a STAT HBsAg test on the mother and administer HBIG to the infant if mother is HBsAg positive.
- Perinatal-exposed infants should be tested for both anti-HBs and HBsAg at 3-9 months following the last dose of vaccine. The presence of anti-HBs indicates immunity to hepatitis B. Hepatitis B-immunized children who are not anti-HBs positive should repeat the 3-dose series; 15-25% will have an antibody response after the fourth dose and 30-50% will respond after the sixth dose. Children who do not respond to 6 doses of vaccine will most likely never respond.
- Follow-up with the case's OB/GYN to ensure that HBIG and vaccine is available (and given) at birth; follow-up with the infant's pediatrician to ensure that subsequent vaccine doses are given.

C. Health Care Worker (HCW):

If the case is a dentist, physician, nurse, or other HCW with potential for exposing patients by blood or other body fluids, recommend the HCW not to work until acute clinical illness has resolved. Upon returning to work, the HCW should take special precautions until no longer infectious, including:

- Wearing gloves for all procedures during which the hands will be in contact with the patients' mucosal surfaces or broken skin.
- Avoiding situations involving sharps that could lead to exposures of blood or objects contaminated with blood of the case.
- Careful and frequent hand washing.

D. Correctional Facilities:

- Coordinate with proper administrative authorities.
- Refer to "Prevention and Control of Infections with Hepatitis Viruses in Correctional Settings" to obtain additional information on investigations, risk factors associated with the population and release management practices.

E. Recent Blood Donor or Recipient:

- If the case has donated blood or plasma \leq 8 weeks prior to onset of symptoms, notify the Office of Surveillance and Epidemiology so that the agency that received the blood or plasma may be notified and any unused product can be recalled.
- If transfused blood or blood products are suspected as the possible source of infection, notify the Office of Surveillance and Epidemiology so that the blood bank or other agency that provided the implicated lot may be notified so that units of the blood still on hand, or the donors themselves, can be retested for HBsAg or tested for anti-HBc. Lot numbers for tracing are usually available through the blood bank at the hospital where the units were transfused.

DATA MANAGEMENT AND REPORTING TO THE KDHE

A. Organize, collect and report data utilizing the following forms:

- Acute Hepatitis B case:
 - General Investigation Form(s)
 - Viral Hepatitis B Supplemental Form – complete the form
- Chronic Hepatitis B case, follow-up needed (i.e. not previously reported):
 - General Investigation Form(s)
 - Viral Hepatitis B Supplemental Form
 - Clinical and Diagnostic Data Section: information that indicates case does not have an acute infection; as needed provide additional notes
 - Pregnancy information is important for all female cases
- Chronic Hepatitis B case, female of childbearing age, previously reported:
 - Collect information on pregnancy status; report all pregnant cases for follow-up to the Kansas Perinatal Hepatitis B Prevention Program.
- Chronic Hepatitis B case, male or elderly female cases, previously reported:
 - A case in which the spelling of the name and date of birth (DOB) match an older case in the surveillance system are considered previously reported. The new report will not be entered into the system and no review is needed at the local level.
 - If there is a discrepancy, with the spelling of the name or the DOB, the local investigator may need to investigate to identify if the case is a previously reported case or is actually a new case. (i.e., through verification of name and DOB).
- Perinatal HBV cases (those diagnosed with acute HBV at >1 year to 24 months of age who were born in the United States or U.S. territories):
 - Perinatal Hepatitis B Supplemental Form

B. For pregnant, HBsAg positive females, the infant will be treated as a contact of the pregnant mother. For contact management forms and data collection tools coordinate through the KDHE Perinatal Hepatitis B Prevention Program.

C. Report data electronically via KS-EDSS or by fax, include:

- At a minimum, all data collected that helps to confirm or classify a case.
- All information collected on the General Investigation and supplemental form(s).

Note:

- 1) HBsAg positive laboratory reports (with no information on anti-HBc or other testing) are initially reported as “Hepatitis B, chronic”. Information from the local investigation may result in a case being changed to “Hepatitis B, acute.”
- 2) For cases reported as acute and ≥ 6 months later determined to have converted to chronic, the initial “Hepatitis B, acute” will remain. A second event “Hepatitis B, chronic” will be entered. The KS-EDSS ID# for the first event will be noted under the new event.
- 3) Chronic cases are not closed in KS-EDSS; but, after the investigation is completed, the case can be marked as “Reviewed” under investigation status. This will remove the case from the new and active case listings.

ADDITIONAL INFORMATION / REFERENCES

- A. Treatment / Differential Diagnosis:** American Academy of Pediatrics. 2006 Red Book: Report of the Committee on Infectious Disease, 27th Edition. Illinois, Academy of Pediatrics, 2006.
- B. Epidemiology, Investigation and Control:** Heymann. D., ed., Control of Communicable Diseases Manual, 18th Edition. Washington, DC, American Public Health Association, 2004.
- C. Case Definitions:** CDC Division of Public Health Surveillance and Informatics, Available at: http://www.cdc.gov/ncphi/diss/nndss/casedef/case_definitions.htm
- D. Kansas Regulations/Statutes Related to Infectious Disease:** <http://www.kdheks.gov/epi/regulations.htm>
- E. Surveillance:** Manual for the Surveillance of Vaccine-Preventable Diseases 3rd Edition, CDC 2008: <http://www.cdc.gov/vaccines/pubs/surv-manual/default.htm>
- F. Pink Book:** Epidemiology and Prevention of Vaccine-Preventable Diseases. Available at: <http://www.cdc.gov/vaccines/pubs/pinkbook/default.htm>
- G. A Comprehensive Immunization Strategy to Eliminate Transmission of Hepatitis B Virus Infection in the United States,**
- **Part 1: Immunization of Infants, Children, and Adolescents, CDC (2005):** <http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5416a1.htm>
 - **Part 2: Immunization of Adults, CDC (2006):** http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5516a1.htm?s_cid=rr5516a1_e
- H. Chronic Cases:** Recommendations for Identification and Public Health Management of Persons with Chronic Hepatitis B Virus Infection, CDC (2008): <http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5708a1.htm>
- I. Correctional Setting:** Prevention and Control of Infections with Hepatitis Viruses in Correctional Settings, CDC (2003): <http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5201a1.htm>
- J. Occupational Exposures:** Updated U.S. Public Health Service Guidelines for the Management of Occupational Exposures to HBV, HCV, and HIV and Recommendations for Postexposure Prophylaxis, CDC (2001): <http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5011a1.htm>
- K. STD Guidelines:** Sexually Transmitted Diseases Treatment Guidelines 2006 (Hepatitis B), CDC: <http://www.cdc.gov/STD/treatment/2006/hepatitis-b.htm>
- L. Additional Information (CDC):** <http://www.cdc.gov/health/default.htm>

Kansas Disease Investigation Guidelines

General Investigation Form

Investigation Information		
Case Type: <input type="checkbox"/> Human Case <input type="checkbox"/> Non-human Case	Disease Name: _____	
Classification: <input type="checkbox"/> Suspect <input type="checkbox"/> Probable <input type="checkbox"/> Confirmed	KS-EDSS Investigation ID: _____	
Outbreak: <input type="checkbox"/> Yes <input type="checkbox"/> No	Outbreak Name: _____	Outbreak #: _____
Onset Date: _____	Diagnosis Date: _____	Report Date: _____
Assigned to (Investigator): _____	Patient Died: <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown	
Patient Information		
Name Type: <input type="checkbox"/> Default/Common <input type="checkbox"/> Legal <input type="checkbox"/> Maiden <input type="checkbox"/> Nickname		
Last: _____	First: _____	Middle: _____
Street: _____	City/State: _____	Zip: _____
Evening Phone #: _____	Daytime Phone #: _____	
Sex: <input type="checkbox"/> Failure to Report <input type="checkbox"/> Female <input type="checkbox"/> Male <input type="checkbox"/> Other <input type="checkbox"/> Transexual <input type="checkbox"/> Unknown		
Race: <input type="checkbox"/> American Indian or Alaska Native <input type="checkbox"/> Asian <input type="checkbox"/> Black or African American <input type="checkbox"/> Native Hawaiian or Other Pacific Islander <input type="checkbox"/> White <input type="checkbox"/> Unknown		
Hispanic / Latino Ethnicity: <input type="checkbox"/> Yes <input type="checkbox"/> No		
Date of Birth: _____	Age: _____	Age Unit: <input type="checkbox"/> Days <input type="checkbox"/> Weeks <input type="checkbox"/> Months <input type="checkbox"/> Years
Parent Information (if under 18)		
Last: _____	First: _____	Middle: _____
Street: _____	City/State: _____	Zip: _____
Evening Phone #: _____	Daytime Phone #: _____	
Work / Occupation or School / Grade		
Worksites / School: _____		
Occupations / Grade: _____		
Travel History		
1st	Destination: _____	Depart Date: _____ Return Date: _____
2nd	Destination: _____	Depart Date: _____ Return Date: _____
3rd	Destination: _____	Depart Date: _____ Return Date: _____
4th	Destination: _____	Depart Date: _____ Return Date: _____

Supplemental Laboratory Report Form

Lab Reports

Laboratory Name: _____

Lab Report Date: _____

Ordering Provider Name: _____

Phone: _____

Facility: _____

Specimen Accession Number: _____

Specimen Collection Date: _____

Organism Name: _____

Organism Species: _____

Organism Serogroup: _____

Organism Serotype: _____

PFGE Results

Pattern 1 KS: _____

Other State: _____

CDC: _____

Pattern 2 KS: _____

Other State: _____

CDC: _____

Pattern 3 KS: _____

Other State: _____

CDC: _____

Additional Results Information

Reported Test Name:

Coded Result:

Text Result:

Numeric Result:

Comments:

Supplemental Contact Form

Contacts

Last: _____ **First:** _____ **Middle:** _____

Street: _____ **City/State:** _____ **Zip:** _____

Evening Phone #: _____ **Daytime Phone #:** _____ **E-mail:** _____

Sex: Failure to Report Female Male Other Transexual Unknown

Race: American Indian or Alaska Native Asian Black or African American Native Hawaiian or Other Pacific Islander White Unknown

Hispanic / Latino Ethnicity: Yes No

Date of Birth: _____ **Age:** _____ **Age Unit:** Days Weeks Months Years

Worksites / School: _____

Occupations / Grade: _____

Exposure Information

Contact Type: Household Sexual Other: _____ **Partner / Cluster Code:** _____

Date of First Exposure: _____ **Date of Last Exposure:** _____ **Frequency:** _____

Nature of Exposure: _____ **Comments:** _____

Testing and Treatment Information

Clinic Code: _____ **Examination Date:** _____

Examination Test: _____ **Examination Result:** _____

Prophylaxis/empiric treatment date: _____ **Drug / Dosage:** _____

Provider (Name / Facility): _____

Disposition and Diagnosis Information

Initiation Date: _____ **Disposition Date:** _____ **Disposition:** _____

Diagnosis: _____ **Referral Type:** Patient Provider **Post-test Counseled :** Yes No

Currently Assigned To: _____ **Follow-up Date:** _____

Risk Factors

Pregnant: Yes No **If Yes, # of Weeks:** _____

Risk factors for complications in contact: None Pregnant Woman HIV Seropositive Unimmunized Index case is a super-spreader

Child younger than 5 Age > 65 Otherwise immunosuppressed (s/p transplant, high dose steroids, etc)

Viral Hepatitis B Supplemental Form

Kansas Department of Health

Epidemiologic Case History

* indicates required fields

Case Type* <i>Human Case Non Human Case</i>	Classification* <i>Confirmed Not a Case Probable Suspect Deleted Unknown</i>
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Supplemental Form Status <i>Not Done Form Complete Form in Progress Form Approved Form Sent to CDC</i>
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Report Date* <small>mm/dd/yyyy</small>
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Patient Demographic Information

* indicates required fields

Last Name*	First Name*	Middle Name	Name Type*	Age
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Age Unit <i>Days Weeks Months Years</i>	Date of Birth <small>mm/dd/yyyy</small>
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Race* <small>(Check all that apply)</small>			
<i>American Indian or Alaska Native</i>	<i>Asian</i>	<i>Black or African American</i>	
<i>Native Hawaiian or Other Pacific Islander</i>	<i>White</i>	<i>Unknown</i>	

Ethnicity* <i>Hispanic or Latino Not Hispanic or Latino Unknown</i>

Sex* <i>Failure to Report Female Male Other Transexual Unknown</i>

Street Address

City	County	State	Zip
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Evening Phone <small>###-###-####</small>	Daytime Phone <small>###-###-####</small>
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Occupation

Person Providing Report

* indicates required fields

Name of Reporting Facility*

Clinical and Diagnostic Data

Was the patient		
Jaundiced? <i>Yes No Unknown</i>	Was the patient pregnant? <i>Yes No Unknown</i>	Due date: <i>mm/dd/yyyy</i>

Epidemiologic Information

During the 6 weeks - 6 months prior to onset of symptoms:

Was the patient a contact of a person with confirmed or suspected acute or chronic hepatitis B virus infection? <i>Yes No Unknown</i>	If yes, type of contact <i>Sexual Household (Non-sexual) Other _____</i>
---	--

Ask both of the following questions regardless of the patient's gender. IN THE 6 MONTHS BEFORE SYMPTOM ONSET HOW MANY:

Male sex partners did the patient have? <i>0 1 2-5 >5 Unknown</i>	Female sex partners did the patient have? <i>0 1 2-5 >5 Unknown</i>
--	--

Was the patient EVER treated for a sexually transmitted disease?
Yes No Unknown

If yes, which disease(s): <small>(Check all that apply)</small> <i>Syphilis Gonorrhea Chlamydia Other, specify _____</i>	If yes, in what year was the most recent treatment? <i>YYYY</i>
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During the 6 weeks - 6 months prior to onset of symptoms:

Did the patient inject drugs not prescribed by a doctor? <i>Yes No Unknown</i>	Did the patient use street drugs, but not inject? <i>Yes No Unknown</i>
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During the 6 weeks - 6 months prior to onset of symptoms:

Did the patient undergo hemodialysis? <i>Yes No Unknown</i>	Did the patient have an accidental stick or puncture with a needle or other object contaminated with blood? <i>Yes No Unknown</i>	If yes, when? <i>mm/dd/yyyy</i>
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Did the patient receive blood or blood products (transfusion)? <i>Yes No Unknown</i>	If yes, when? <i>mm/dd/yyyy</i>	If Yes, where?
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Did the patient receive any IV infusions and/or injections in the outpatient setting?
Yes No Unknown

Did the patient have other exposure to someone else's blood? <i>Yes No Unknown</i>	If Yes, specify:
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Was the patient employed in a medical or dental field involving direct contact with human blood? <i>Yes No Unknown</i>	If yes, frequency of direct blood contact: <i>Frequent (several times weekly) Infrequent</i>
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Was the patient employed as a public safety worker (fire fighter, law enforcement or correctional officer) having direct contact with human blood?
Yes No Unknown

If yes, frequency of direct blood contact: <i>Frequent (several times weekly) Infrequent</i>	If yes, specify health field:	If yes, specify facility of employment:
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Did the patient receive a tattoo? <i>Yes No Unknown</i>	If yes, where was the tattooing performed? <small>(Check all that apply)</small> <i>Commercial parlor/shop Correctional facility Other (specify) _____</i>
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Epidemiologic Information cont.

Did the patient have any part of their body pierced (other than ear)? <i>Yes No Unknown</i>		
If yes, where was the piercing performed? <small>(Check all that apply)</small> <i>Commercial parlor/shop Correctional facility Other (specify) _____</i>		
Did the patient have dental work or oral surgery? <i>Yes No Unknown</i>	Did the patient have surgery? (other than oral surgery) <i>Yes No Unknown</i>	
Was patient hospitalized because of this illness? <i>Yes No Unknown</i>	Was the patient a resident of a long term care facility? <i>Yes No Unknown</i>	If yes, indicate facility:
Was the patient incarcerated for longer than 24 hours? <i>Yes No Unknown</i>	If yes, what type of facility? <small>(Check all that apply)</small> <i>Prison Jail Juvenile facility</i>	Name of facility:
During his/her lifetime, was the patient EVER incarcerated for longer than 6 months? <i>Yes No Unknown</i>	If yes, what year was the most recent incarceration? <i>YYYY</i>	If yes, for how long? <small>(months)</small>
Did the patient ever receive hepatitis B vaccine? <i>Yes No Unknown</i>	If yes, how many shots? <i>1 2 3 or more</i>	In what year was the last shot received? <i>YYYY</i>
Was the patient tested for antibody to HBsAg (anti-HBs) within 1-2 months after the last dose? <i>Yes No Unknown</i>	If yes, was the serum anti-HBs \geq 10mIU/ml? (answer 'yes' if the laboratory result was reported as 'positive' or 'reactive') <i>Yes No Unknown</i>	

Perinatal Hepatitis B Virus Infection Supplemental Form

Kansas Department of Health

Epidemiologic Case History

* indicates required fields

Case Type* <i>Human Case Non Human Case</i>	Classification* <i>Confirmed Not a Case Probable Suspect Deleted Unknown</i>
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Supplemental Form Status <i>Not Done Form Complete Form in Progress Form Approved Form Sent to CDC</i>
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Report Date* <small>mm/dd/yyyy</small>
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Patient Demographic Information

* indicates required fields

Last Name*	First Name*	Middle Name	Name Type*	Age
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Age Unit <i>Days Weeks Months Years</i>	Date of Birth <small>mm/dd/yyyy</small>
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Race* <small>(Check all that apply)</small>			
<i>American Indian or Alaska Native</i>	<i>Asian</i>	<i>Black or African American</i>	<i>White Unknown</i>
<i>Native Hawaiian or Other Pacific Islander</i>			

Ethnicity* <i>Hispanic or Latino Not Hispanic or Latino Unknown</i>

Sex* <i>Failure to Report Female Male Other Transexual Unknown</i>

Street Address

City	County	State	Zip
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Evening Phone <small>###-###-####</small>	Daytime Phone <small>###-###-####</small>
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Occupation

Person Providing Report

Name of Reporting Facility*

Clinical and Diagnostic Data

Reason for Testing:

(Check all that apply)

Symptoms of acute hepatitis

Evaluation of elevated liver enzymes

Screening of asymptomatic patient with reported risk factors

Blood / organ donor screening

*Screening of asymptomatic patient with no risk factors
(e.g., patient requested)*

Follow-up testing for previous marker of viral hepatitis

Prenatal screening

Unknown

Other _____

Was the patient

Jaundiced?

Yes No Unknown

Date of Onset

mm/dd/yyyy

Epidemiologic Information

Race of Mother:

American Indian or Alaskan Native

Asian

Black or African American

Hawaiian or Other Pacific Islander _____

Other Race (Specify) _____

Unknown

White

Ethnicity of Mother:

Hispanic or Latino Not Hispanic or Latino Unknown

Was mother born outside of the United States?

Yes No Unknown

If yes, what country?
Was the mother confirmed HBsAg positive prior to or at time of delivery?

Yes No Unknown

If no, was the mother confirmed HBsAg positive after delivery?

Yes No Unknown

Date of HBsAg positive test result:

mm/dd/yyyy

How many doses of hepatitis B vaccine did the child receive?

0 1 2 3 or more

Dose 1 Date

mm/dd/yyyy

Dose 2 Date

mm/dd/yyyy

Dose 3 Date

mm/dd/yyyy

Did the child receive hepatitis B immune globulin (HBIG)?

Yes No Unknown

If yes, on what date did the child receive HBIG?

mm/dd/yyyy

Public Health Fact Sheet

Hepatitis B

What is hepatitis B?

Hepatitis B is a contagious liver disease that ranges in severity from a mild illness lasting a few weeks to a serious, lifelong illness. It results from infection with the hepatitis B virus. Hepatitis B can be either “acute” or “chronic.”

Acute hepatitis B virus infection is a short-term illness that occurs within the first 6 months after someone is exposed to the hepatitis B virus. Acute infection can — but does not always — lead to chronic infection.

Chronic hepatitis B virus infection is a long-term illness that occurs when the hepatitis B virus remains in a person’s body.

Does acute hepatitis B cause symptoms?

Sometimes. Although a majority of adults develop symptoms from acute hepatitis B virus infection, many young children do not. Adults and children over the age of 5 years are more likely to have symptoms. Seventy percent of adults will develop symptoms from the infection. Those with no symptoms can still spread the virus.

What are the symptoms of acute hepatitis B?

Symptoms of acute hepatitis B, if they appear, can include:

- Fever
- Fatigue
- Loss of appetite
- Nausea
- Vomiting
- Abdominal pain
- Dark urine
- Clay-colored bowel movements
- Joint pain
- Jaundice (yellow color in the skin or the eyes)

How soon after exposure to hepatitis B will symptoms appear?

On average, symptoms appear 90 days (or 3 months) after exposure, but they can appear any time between 6 weeks and 6 months after exposure.

How long do acute hepatitis B symptoms last?

Symptoms usually last only a few weeks, but they can continue for up to 6 months.

How is acute hepatitis B treated?

There is no medication available to treat acute hepatitis B. During this short-term infection, doctors usually recommend rest, adequate nutrition, and fluids.

This fact sheet is for information only and is not intended for self-diagnosis or as a substitute for consultation. If you have any questions about the disease described above or think that you may have an infection, consult with your healthcare provider. This fact sheet is based on the Centers for Disease Control and Prevention’s Health and Safety topic fact sheets.

If I had hepatitis B in the past, can I get it again?

No, once you recover from hepatitis B, you develop antibodies that protect you from the virus for life. An antibody is a substance found in the blood that the body produces in response to a virus attaching to the virus and destroying it. However, some people, especially those infected during early childhood, remain infected for life because they never clear the virus from their bodies.

How likely is it that acute hepatitis B will become chronic?

The likelihood depends upon the age at which one becomes infected. The younger a person is when infected with hepatitis B, the greater the chance of developing chronic infection. Approximately 90% of infected infants will develop chronic infection. The risk goes down as a child gets older. Approximately 25%–50% of children infected between the ages of 1 and 5 years will develop chronic hepatitis. The risk drops to 6%–10% when a person is infected over 5 years of age.

What are the symptoms of chronic hepatitis B?

Some people have ongoing symptoms similar to acute hepatitis B, but most individuals with chronic hepatitis B remain symptom free for as long as 20 or 30 years. About 15%–25% of people with chronic hepatitis B develop serious liver conditions, such as cirrhosis (scarring of the liver) or liver cancer. Even as the liver becomes diseased, some people still do not have symptoms, although certain blood tests for liver function might begin to show some abnormalities.

How serious is chronic hepatitis B?

Chronic hepatitis B is a serious disease that can result in long-term health problems, including liver damage, liver failure, liver cancer, or even death.

How is chronic hepatitis B treated?

It depends. People with chronic hepatitis B virus infection should seek the care or consultation of a doctor with experience treating hepatitis B. This can include some internists or family medicine practitioners, as well as specialists such as infectious disease physicians, gastroenterologists, or hepatologists (liver specialists). People with chronic hepatitis B should be monitored regularly for signs of liver disease and evaluated for possible treatment. Several medications have been approved for hepatitis B treatment, and new drugs are in development. However, not every person with chronic hepatitis B needs to be on medication, and the drugs may cause side effects in some patients.

What can people with chronic hepatitis B do to take care of their liver?

People with chronic hepatitis B should be monitored regularly by a doctor experienced in caring for people with hepatitis B. They should avoid alcohol because it can cause additional liver damage. They also should check with a health professional before taking any prescription pills, supplements, or over-the-counter medications, as these can potentially damage the liver.

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How is hepatitis B spread?

Hepatitis B is spread when blood, semen, or other body fluid infected with the hepatitis B virus enters the body of a person who is not infected. People can become infected with the virus during activities such as:

- Birth (spread from an infected mother to her baby during birth)
- Sex with an infected partner
- Sharing needles, syringes, or other drug-injection equipment
- Sharing items such as razors or toothbrushes with an infected person
- Sharing food that has been pre-chewed by an infected person
- Direct contact with the blood or open sores of an infected person
- Exposure to blood from needlesticks or other sharp instruments

Can a person spread hepatitis B and not know it?

Yes. Many people with chronic hepatitis B virus infection do not know they are infected since they do not feel or look sick. However, they still can spread the virus to others and are at risk of serious health problems themselves.

Can hepatitis B be spread through sex?

Yes. In the United States, hepatitis B is most commonly spread through sexual contact. Nearly two-thirds of acute hepatitis B cases among adults are from sexual contact. Hepatitis B is 50–100 times more infectious than HIV and can be passed through the exchange of body fluids, such as semen, vaginal fluids, and blood.

What are ways hepatitis B is not spread?

Hepatitis B virus is not spread by sharing eating utensils, breastfeeding, hugging, kissing, holding hands, coughing, or sneezing. Unlike hepatitis A, it is not spread routinely through food or water. However, there have been times hepatitis B has been spread to babies through food pre-chewed by an infected person.

Can I donate blood, organs, or semen if I have hepatitis B?

No, if you have ever tested positive for the hepatitis B virus, experts recommend that you not donate blood, organs, or semen because this can put the recipient at great risk for getting hepatitis.

How long does the hepatitis B virus survive outside the body?

Hepatitis B virus can survive outside the body at least 7 days. During that time, the virus can still cause infection if it enters the body of a person who is not infected.

How should blood spills be cleaned from surfaces to make sure that hepatitis B virus is gone?

All blood spills — including those that have already dried — should be cleaned and disinfected with a mixture of bleach and water (one part household bleach to 10 parts water). Gloves should always be used when cleaning up any blood spills. Even dried blood can present a risk to others.

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Who is at risk for hepatitis B?

Although anyone can get hepatitis B, some people are at greater risk, such as those who:

- Have sex with an infected person
- Have multiple sex partners
- Have a sexually transmitted disease
- Are men who have sexual contact with other men
- Inject drugs or share needles, syringes, or other drug equipment
- Live with a person who has chronic hepatitis B
- Are infants born to infected mothers
- Are exposed to blood on the job
- Are hemodialysis patients
- Travel to countries with moderate to high rates of hepatitis B

Can hepatitis B be prevented?

Yes. The best way to prevent hepatitis B is by getting the hepatitis B vaccine. The hepatitis B vaccine is safe and effective and is usually given as 3-4 shots over a 6-month period. State regulations require three doses for school entry for all children through grade 5, unless the child has history of prior hepatitis B disease.

Who should get vaccinated against hepatitis B?

Hepatitis B vaccination is recommended for:

- All infants, starting with the first dose of hepatitis B vaccine at birth
- All children and adolescents younger than 19 years of age who have not been vaccinated
- People whose sex partners have hepatitis B
- Sexually active persons who are not in a long-term, mutually monogamous relationship.
- Persons seeking evaluation or treatment for a sexually transmitted disease
- Men who have sexual contact with other men
- People who share needles, syringes, or other drug-injection equipment
- People who have close household contact with someone infected with the hepatitis B virus
- Healthcare and public safety workers at risk for exposure to blood or blood-contaminated body fluids on the job
- People with end-stage renal disease, including predialysis, hemodialysis, peritoneal dialysis, and home dialysis patients
- Residents and staff of facilities for developmentally disabled persons
- Travelers to regions with moderate or high rates of hepatitis B
- People with chronic liver disease
- People with HIV infection
- Anyone who wishes to be protected from hepatitis B virus infection

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For more information about hepatitis B and other vaccines, see <http://www.cdc.gov/vaccines/recs/schedules/default.htm> .

If I think I have been exposed to the hepatitis B virus, what should I do?

If you are concerned that you might have been exposed to the hepatitis B virus, call your health professional or your health department. If a person who has been exposed to hepatitis B virus gets the hepatitis B vaccine and/or a shot called “HBIG” (hepatitis B immune globulin) within 24 hours, hepatitis B infection may be prevented.

What is hepatitis B immune globulin (HBIG)?

Hepatitis B immune globulin is a substance made from human blood samples that contains antibodies against the hepatitis B virus. It is given as a shot and can provide short-term protection (approximately 3 months) against hepatitis B.

What about other kinds of hepatitis?

There are several different kinds of hepatitis viruses. If you have had one type, you can still get any of the others. The hepatitis A virus is spread by feces (stool) through close personal contact or contaminated food and water. The hepatitis B virus is spread through blood and body fluids, like semen. There are vaccines to protect you from hepatitis A and B infections. If you have hepatitis C, ask your doctor about being vaccinated for hepatitis A and B.

Where can I get more information?

- Your Local Health Department
- Kansas Department of Health and Environment, Epidemiologic Services Section at (877) 427-7317
- <http://www.cdc.gov/health/default.htm>
- Your doctor, nurse, or local health center

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Public Health Fact Sheet

Hepatitis B and Pregnancy

Are pregnant women tested for hepatitis B?

Yes. When a pregnant woman comes in for prenatal care, she will be given a series of routine blood tests, including one that checks for the presence of hepatitis B virus infection. This test is important because women infected with this virus can pass hepatitis B to their babies during birth. But this can be prevented by giving the infant HBIG and the first hepatitis B vaccine at birth, and then completing the series.

What if a pregnant woman has hepatitis B?

If a pregnant woman has hepatitis B, she can pass the infection to her baby during birth. But this can be prevented through a series of vaccinations and HBIG for her baby beginning at birth. Without vaccination, babies born to women with hepatitis B virus infection can develop chronic infection, which can lead to serious health problems.

How does a baby get hepatitis B?

A baby can get hepatitis B from an infected mother during childbirth.

Can a baby be protected from getting hepatitis B from his or her mother during birth?

Yes, almost all cases of hepatitis B can be prevented if a baby born to an infected woman receives the necessary shots at the recommended times. The infant should receive a shot called hepatitis B immune globulin (HBIG) and the first dose of hepatitis B vaccine within 12 hours of birth. Two or 3 additional shots of vaccine are needed over the next 1–15 months to help prevent hepatitis B. The timing and total number of shots will be influenced by several factors, including the type of vaccine and the baby's age and weight. In addition, experts recommend that the baby be tested after completion of the vaccine series to make sure he or she is protected from the disease. To best protect your baby, follow the advice of his or her doctor.

What happens if a baby gets hepatitis B?

Most newborns who become infected with hepatitis B virus do not have symptoms, but they have a 90% chance of developing chronic hepatitis B. This can eventually lead to serious health problems, including liver damage, liver cancer, and even death.

Do babies need the hepatitis B vaccine even if a pregnant woman does not have hepatitis B?

Yes. The hepatitis B vaccine is recommended for all infants. CDC recommends that the infant get the first shot before leaving the hospital.

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Why is the hepatitis B vaccine recommended for all babies?

Hepatitis B vaccine is recommended for all babies so that they will be protected from a serious but preventable disease. Babies and young children are at much greater risk for developing a chronic infection if infected, but the vaccine can prevent this.

Where can I get more information?

- Your Local Health Department
- Kansas Department of Health and Environment, Epidemiologic Services Section at (877) 427-7317
- <http://www.cdc.gov/health/default.htm>
- Your doctor, nurse, or local health center

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