

Assessment of Kansas hospital policies to prevent perinatal hepatitis B transmission, 2011



Background

Hepatitis B virus (HBV) is spread via infected blood and other body fluids (saliva and semen). Individuals who are chronically infected are at an increased risk for cirrhosis of the liver and hepatocellular carcinoma (HCC). Vertical transmission (mother to child) during the perinatal period is one of the most efficient means of transmission. HBV-positive women have up to a 90% chance of transmitting the virus to their infant (1), which can result in significant morbidity and mortality for the infant. However, proper chemoprophylaxis has been shown to be 85-95% effective in preventing an infant from becoming a chronic carrier of HBV (2) (3) (4). The Advisory Committee on Immunization Practices has published guidelines addressing testing, treatment, and documentation of HBV-positive women and their infants (1).

To aid in the identification of HBV-positive women, and thus reduce the risk of perinatal hepatitis B transmission, Kansas statute 65-153f states that all women shall be tested for hepatitis B within 14 days of diagnosis of pregnancy and the Kansas Department of Health and Environment regulation 28-1-2 states that each confirmed or suspected case of hepatitis B including hepatitis B in pregnancy are to be reported within 7 days to the Kansas Department of Health and Environment. All pregnant women should be tested for the hepatitis B surface antigen (HBsAg), which is a marker for HBV infection. Additionally, they can be tested for the hepatitis B "e" antigen (HBeAg), which indicates a high level of virus in the blood, and therefore high infectivity. Following a notification of a HBV positive pregnant woman, follow up is conducted by the local health department and the Kansas Department of Health and Environment (KDHE), which includes providing education regarding prevention interventions for both their infant and other household contacts, ensuring that household contacts are tested and vaccinated against hepatitis B, and making certain that their infants receive proper chemoprophylaxis to prevent them from becoming infected. In addition to the follow up that is conducted by the health department, delivery hospitals should implement written policies and standing orders regarding pregnant HBsAg-positive women and pregnant women with unknown HBsAg status, as well as their infants.

Objective

The objective was to assess the policies and procedures concerning prevention of perinatal HBV transmission in birthing hospitals throughout Kansas.

Methods

A survey was created to meet the objective of this study and was based on a previous survey created by the Centers for Disease Control and Prevention (CDC). Questions were asked to assess the existence of standing orders and written policies regarding prevention of perinatally acquired HBV. The surveys were mailed to the directors of labor and delivery (L&D) at Kansas birthing hospitals. A hospital was considered to have a policy in place if they responded affirmatively to having standing orders, written policies, or both for each recommended policy.

Results

Completed surveys were received from 44 (78.5%) birthing hospitals. Of the respondents, more than three-quarters of them had standing orders, written policies, or both to provide proper chemoprophylaxis (hepatitis B vaccine and HBIG) to infants born to HBsAg-positive mothers (Table 1). Additionally, 89% of hospitals provide the hepatitis B vaccine to all newborns prior to discharge. However, only 5% of hospitals have standing orders or written policies to perform repeat HBsAg testing of hepatitis B negative women who are considered to be at high risk for infection, including those who have had more than one sex partner in the previous 6 months, have been evaluated for treatment of a sexually transmitted disease (STD), have recent or current injection drug use, have an HBsAg-positive sex partner or have clinical hepatitis. Furthermore, only 61% of the responding hospitals had policies or orders in place for testing women with unknown HBsAg status. Finally, only 30% of hospitals had a policy in place to document maternal HBsAg results in the infant's chart.

Table 1. Percent of hospitals with perinatal hepatitis B prevention policies

Policies	%
Have a policy to review prenatal HBsAg (hepatitis B surface antigen) test results at the time of admission to the Labor and Delivery (L & D) unit for all pregnant women	73.17
Have a policy for HBsAg testing as soon as possible after admission for women admitted to L & D who do not have a documented HBsAg test result	60.98
Have a policy for repeat testing of pregnant, HBsAg-negative women who are at risk for HBV infection during pregnancy? (e.g. >1 sex partner in the previous six months, evaluation or treatment for an STD, recent or current injection drug use, HBsAg-positive sex partner or who have had clinical hepatitis)	4.88
Have a policy for administration of HBIG (hepatitis B immune globulin) within 12 hours of birth for all infants born to HBsAg-positive mothers	80.49
Have a policy for administration of hepatitis B vaccine within 12 hours of birth for all infants born to HBsAg-positive mothers	80.49
Have a policy for administration of hepatitis B vaccine within 12 hours of birth for all infants born to mothers with unknown HBsAg status	68.29
Have a written policy to routinely administer the hepatitis B vaccine to all newborns before hospital discharge	87.8
Have a written policy for documentation of maternal HBsAg test results in the infant's medical record	30.00

Discussion

A majority of Kansas hospitals have policies in place to determine HBV test results of newly admitted pregnant women, to administer HBIG and HBV vaccine to infants born to HBsAg-positive women, and to routinely administer the HBV vaccine to all infants prior to hospital discharge.

The prevalence of women chronically infected with HBV with a positive HBsAg test is higher in pregnant women who receive no prenatal care than in women who receive prenatal care. Those with no prenatal care will likely show up with an unknown HBsAg test and while a little over half of Kansas hospitals have a policy in place to test these women and to ensure that their infants are vaccinated within 12 hours there are still many who do not have these policies in place. (5). In 2011, approximately 1% of women who gave birth in Kansas received no prenatal care (6). Additionally, the CDC projects that every year, Kansas should identify between 102 and 145 infants born to hepatitis B positive mothers. From 2006-2010, Kansas identified an average of 52 infants; therefore, KDHE may not be identifying all infants born to HBsAg-positive women.

To ensure that all infants are managed properly, there are numerous policies that can be implemented to prevent perinatal transmission of hepatitis B (Appendix A). HBsAg status should be reviewed for all women upon admission to labor and delivery. If there is no documented HBsAg status, testing should be performed, and results should be obtained within 24 hours to enable proper chemoprophylaxis is given to the infant. Hospitals that do not have HBsAg-testing capabilities should make arrangements with a local laboratory to ensure test results are obtained within the recommended time frame, or if possible testing capabilities should be developed in-house.

Perinatal transmission of hepatitis B is a highly efficient method of transmission that occurs when the infant is exposed to blood during labor and delivery. Infants born to HBsAg- and HBeAg-positive mothers have a 70 – 90% chance of acquiring HBV unless they receive hepatitis B vaccine and hepatitis B immunoglobulin (7). Up to 90% of infants who are infected via perinatal transmission will develop a chronic HBV infection, and of these 25% will die prematurely of cirrhosis or liver cancer (1). To prevent chronic infection and the complications associated with it, proper postexposure prophylaxis, consisting of HBIG and hepatitis B vaccine should be administered within 12 hours of birth. All infants should receive the first dose of hepatitis B vaccine prior to discharge from the hospital.

To ensure this appropriate treatment is routinely given, hospitals should implement standing orders and written policies based on ACIP recommendations (1). Additional information can be found on the CDC website <http://www.cdc.gov/hepatitis/HBV/PerinatalXmtn.htm> and KDHE's website <http://www.kdheks.gov/hiv/hepatitis.htm>.

Report by:

Elizabeth M. Lawlor, MS

Kansas Department of Health and Environment
Bureau of Epidemiology and Public Health Informatics
1000 SW Jackson, Suite 075
Topeka, Kansas 66612-1290
Telephone (785) 368-8208

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APPENDIX A

Delivery Hospital Policies and Procedures to Prevent Perinatal Hepatitis B Virus Transmission

At time of admission for delivery

- Review hepatitis B surface antigen (HBsAg) status of all pregnant women.
- Record maternal HBsAg test results on both labor and delivery record and on infant's delivery summary sheet.
- Perform HBsAg testing as soon as possible on women who
 - do not have a documented HBsAg test result;
 - were at risk for hepatitis B virus (HBV) infection during pregnancy (e.g., >1 sex partner in the previous 6 months, evaluation or treatment for a sexually transmitted disease, recent or current injection-drug use, or HBsAg-positive sex partner); or
 - had clinical hepatitis since previous testing.

After delivery

HBsAg-positive mothers and their infants

- Administer single-antigen hepatitis B vaccine and hepatitis B immune globulin (HBIG) to all infants born to HBsAg-positive mothers ≤ 12 hours after birth and record date and time of administration of HBIG and hepatitis B vaccine in infant's medical record.
- Provide information regarding hepatitis B to HBsAg-positive mothers, including
 - advice that they may breast feed their infants upon delivery;
 - modes of HBV transmission;
 - need for vaccination of their susceptible household, sexual, and needle-sharing contacts;
 - need for substance abuse treatment, if appropriate; and
 - need for medical management and possible treatment for chronic hepatitis B.

Mothers with unknown HBsAg status and their infants

- Administer single-antigen hepatitis B vaccine (without HBIG) to all infants born to mothers with unknown HBsAg status ≤ 12 hours after birth and record date and time of administration of hepatitis B vaccine on infant's medical record.
- Alert infant's pediatric health-care provider if an infant is discharged before the mother's HBsAg test result is available; if the mother is determined to be HBsAg positive, HBIG should be administered to the infant as soon as possible, but no later than age 7 days.

All mothers and their infants

- Administer a dose of single-antigen hepatitis B vaccine to all infants weighing $\geq 2,000$ g.
- Ensure that all mothers have been tested for HBsAg prenatally or at the time of admission for delivery, and document test results.

At time infant is discharged

- Provide infant's immunization record to mother and remind her to take it to the infant's first visit to a pediatric health-care provider.