Yakima Health District
BULLETIN
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Prevention of Perinatal Hepatitis B Transmission

Overview

Perinatal transmission of hepatitis B virus (HBV) is preventable through universal testing for HBV surface antigen (HBsAg) among pregnant women followed by prompt immunoprophylaxis and serologic follow-up for those infants born to HBsAg-positive mothers. While initiation and completion rates for immunoprophylaxis are good, improvement is needed in case detection-and-reporting as well as in completion of post-vaccination serologic evaluation.

Summary of Clinical Practice Recommendations

- Conduct HBsAg testing at the first prenatal care visit for all pregnant women. Repeat testing in the third trimester if the mother has ongoing risk factors for acquisition.
- Notify YHD at (509) 249-6541 within 3 business days of receipt of positive HBsAg results in any pregnant woman.
- Review HBsAg test results for all women upon admission to labor and delivery. Conduct HBsAg testing immediately in labor and delivery if a woman does not have an HBsAg test result or has risk factors for acquisition during pregnancy.
- For children born to HBsAg-negative mothers, provide dose 1 of HBvax at birth.
- For children of HBsAg-positive mothers:
    - provide HBV immune globulin (HBIG--0.5ml IM) and HBV vaccine (HBVax) within 12 hours of birth;
    - notify YHD to ensure continuity of follow-up
    - ensure that HBsAg immunization information is promptly transmitted from the labor and delivery facility to the infant's pediatric care provider;
    - provide doses 2 and 3 of HBVax at 1-2 months and 6 months of age, respectively;
    - test for HBsAg and antibodies to HBsAg (anti-HBs) at 9 months of age;
    - repeat the hepatitis B vaccine series at intervals of 0, 1, and 6 months for all infants who test HBsAg-negative and anti-HBs-negative at the post-vaccination serologic evaluation;
    - use the attached form to track completion of steps and then submit it to YHD at each milestone along the way;
    - work with YHD program staff to assure that sexual partners and household contacts of the infected mother are also tested and (if HBsAg-negative) immunized with HBVax; and
    - refer HBsAg-positive mothers and contacts for further evaluation and treatment of HBV.

Background

Of the approximately four million births in the U.S. each year, an estimated 19,000 occur to HBV-infected women. Unless exposed infants receive appropriate immunoprophylaxis, about 90 percent will become infected. About 90 -95% of perinatal transmission occurs during parturition, when the infant's mucous membranes are exposed to infectious maternal blood and body fluids while transiting the birth canal. Only a small proportion of cases are attributable to other mechanisms (e.g., prenatal transplacental transmission, invasive procedures). Breastfeeding is not considered a risk for transmission to the infant as long as the newborn receives appropriate immunoprophylaxis. Insufficient evidence exists to support use of caesarian delivery as a means of preventing transmission. Of those infants infected, 90% will become chronic carriers. The Centers for Disease Control and Prevention (CDC) estimates that up to 25 percent of the infants who become chronically infected will die from primary liver cancer or cirrhosis of the liver; this typically occurs decades after the initial acquisition.

Prevention

Perinatal transmission of HBV can be prevented with 90-95% success if HBsAg-positive pregnant women are identified and their infants receive appropriate immunoprophylaxis. This consists of HBIG and HBVax being administered within 12 hours of birth, followed by additional doses of HBVax at 1-2 months and 6 months of age. Because high HBV DNA titer maternal infections (e.g., $\geq 10^6$-10^8 copies/ml) are associated with greater risk of transmission, some experts also recommend prenatal treatment of such women with tenofovir, entecavir, or lamivudine during pregnancy to reduce viral load and risk of transmission to the infant at birth. After immunoprophylaxis of the infant is completed, infants born to HBsAg-positive women should be tested for HBsAg and anti-HBs. This can typically be conducted at the first well child visit following completion of the HBVax series, but not sooner than one month after the last dose and nine months after delivery. Infants with negative results to both HBsAg and anti-HBs should complete a second three-dose vaccine series and then should be retested 1-2 months after completion of the second vaccine series.

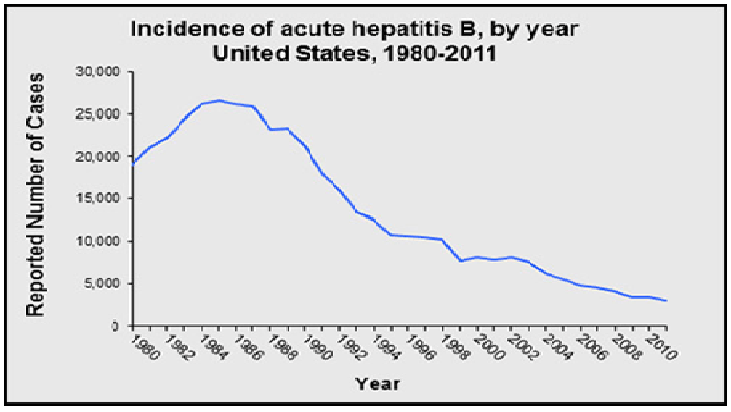
Since 1989, the Centers for Disease Control and Prevention has funded the Washington State Department of Health (DOH) to operate a perinatal hepatitis B prevention program. YHD is the local agent of this program, receiving case reports of HBsAg mothers from clinicians and laboratories and coordinating efforts to ensure that appropriate management of exposed infants, sexual partners, and household contacts occurs. In 2011, births of 343 infants to HBsAg-positive mothers were reported in Washington State. DOH estimates, however, that another 200 infant exposures go undetected or unreported annually. Locally, <5 reported births to HBsAg-positive women occur annually in Yakima County. Yakima County's relatively low proportion of the statewide burden reflects a low proportion of delivering mothers who themselves were born in high prevalence regions of the globe (e.g., Africa, Asia, Middle East, eastern Europe).

Reported outcomes for the cascade of intervention steps to HBsAg-exposed infants born in 2011 are as follows:

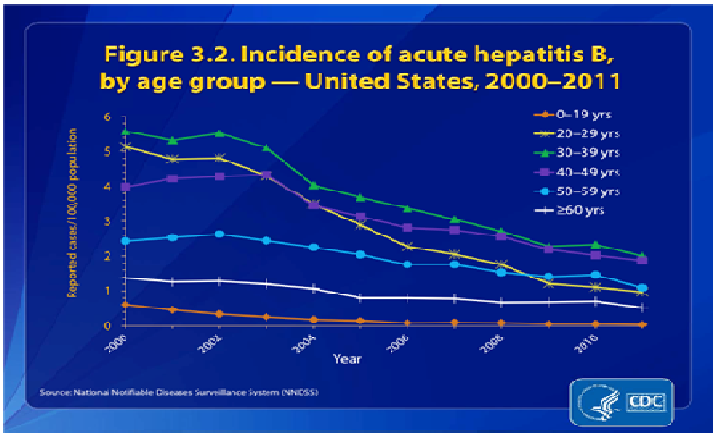
Milestone	Yakima County 2006-2013 (n=16)	Washington State 2011	United States 2011
Exposed mother-infant pairs detected and reported	No estimate	60% (estimate)	60% (estimate)
HBIG + Dose 1 HBVax at ≤12 hours	94%	98%	95%
HBIG + Doses 1-3 HBVax within 12 months	88%	85%	83%
Post-vaccination serology completed	75%	65%	58%

Source: DOH Perinatal HBV Prevention Program, 2013

Notwithstanding the room for improvement in both case ascertainment and completion of post-vaccination serology, the strategy to reduce hepatitis B incidence through prevention of perinatal transmission, universal infant immunization, and catch-up immunization of high risk groups has contributed substantially to the 90% overall reduction witnessed in the past 25 years as well as the age specific decline to almost zero among individuals <20 years of age.



Source: CDC, 2013



Vaccination of Premature Infants

Infants of all gestational ages and weights who are born to HBsAg-positive mothers (and mothers with unknown status) should receive HBIG and hepatitis B vaccine less than 12 hours after birth. Decreased immunogenicity of the vaccine has been observed when HBVax is administered at birth among infants with birth weight <2,000 grams. Consequently, an extra (fourth) dose is recommended for any infant weighing less than 2,000 grams at birth who received the first dose of HBVax at birth. The recommended, four-dose schedule for such infants is to administer subsequent doses at 1, 2-4, and 6 months of age.

Timing of HBVax dose 1 for premature infants born to HBsAg-negative mothers is determined by the infant's weight:

HBV Immunization of Infants born to HBsAg-negative Mothers

≥2,000 grams	<2,000 grams

• HBV vaccine at birth
• Complete the hepatitis B vaccine series with
  o single-antigen vaccine at ages 2 months and 6–18 months, *or*
  o hepatitis B-containing combination vaccine at ages 2, 4, and 6 months (Pediarix) or 2, 4, and 12–15 months (Comvax).
• Follow-up anti-HBs and HBsAg testing is not needed.
	• Delay first dose of hepatitis B vaccine until 1 month of age or hospital discharge, whichever is first.
	• Complete the hepatitis B vaccine series with
	  o single-antigen vaccine at ages 2 months and 6 –18 months, *or*
	  o hepatitis B-containing combination vaccine at ages 2, 4, and 6 months (Pediarix) or 2, 4, and 12–15 months (Comvax).
	• Follow-up anti-HBs and HBsAg testing is not needed.

Sources: American Academy of Pediatrics, Red Book 12th ed., 2012; CDC, 2007.

Catch-up and Minimum Intervals between Doses

For infants, children, adolescents, and adults with lapsed immunizations (i.e., the interval between doses is longer than that in one of the recommended schedules), the vaccine series can be completed regardless of the interval from the last dose of vaccine. Simply resume immunization with the next dose in the series.

Minimum intervals between HBVax doses are as follows:

Dose	Minimum Interval since Last Dose
2	4 weeks
3	Minimum of 8 weeks after second dose, and At least 16 weeks after first dose, and For infants, at least 24 weeks of age

Source: The Pink Book, CDC, 2012

Additional Reading and Resources

DOH Perinatal HBV Program
http://www.doh.wa.gov/YouandYourFamily/Immunization/Diseases/HepatitisBDisease/PerinatalHepatitisBPreventionProgram

Hepatitis B. In *Red Book: 2012, Report of the Committee on Infectious Diseases*. Pickering LK, ed. 29th ed., p. 369-390. Elk Grove Village, IL: American Academy of Pediatrics; 2012.

Hepatitis B. In *The Pink Book: Epidemiology and Prevention of Vaccine-Preventable Diseases*, 12th ed. Atlanta, GA: Centers for Disease Control and Prevention; 2012. http://www.cdc.gov/vaccines/pubs/pinkbook/hepb.html

CDC. A Comprehensive Immunization Strategy to Eliminate Transmission of Hepatitis B Virus Infection in the United States. *MMWR* 2005;54(RR-16).
www.cdc.gov/mmwr/PDF/rr/rr5416.pdf

Pediatric Care Provider Checklist

Infants Born to HBsAg-Positive Mothers

Name of Mother: _____

Mother's Date of Birth: _____

Name of Infant: _____

Infant's Date of Birth: _____

Chart/ID Number: _____

Local health jurisdiction fax number: _____

HBIG and hepatitis B vaccine dose #1 *recommended within 12 hours of birth*

Date given: _____

Hepatitis B vaccine dose #2 *recommended at 1 month of age*

Date given: _____

Hepatitis B vaccine dose #3 *recommended at 6 months of age*

Date given: _____

HBsAg and anti-HBs (or HBsAb) test *recommended at 9-15 months of age*

Date given: _____

Results: _____

SECOND Hepatitis B vaccine series (if needed) *0, 1, and 6 months intervals*

Date Dose # 1 given: _____

Date Dose # 2 given: _____

Date Dose # 3 given: _____

SECOND HBsAg and anti-HBs (or HBsAb) (if needed) 1-2 months after 2nd series

Date given: _____

Results: _____

YAKIMA HEALTH DISTRICT

1210 Ahtanum Ridge Drive
Union Gap, WA 98903

Reporting Line: (509) 249-6541
After hours Emergency: (509) 575-4040 #1
Toll Free: (800) 535-5016 x 541

Confidential Fax: (509) 249-6628

http://www.yakimapublichealth.org

Notifiable Condition *(includes confirmed and probable cases)*	Cases Jan – Nov 2013	Cases Jan – Nov 2012	Cases Jan – Nov 2011	Total Cases by Year 2012	Total Cases by Year 2011
Campylobacteriosis	150	96	121	108	122
Chlamydia	1267	1206	1138	1303	1224
Cryptosporidiosis	3	4	1	5	1
Genital Herpes - Initial	55	58	71	61	74
Giardiasis	10	14	16	15	16
Gonorrhea	155	76	92	81	99
Hepatitis A acute	4	2	0	2	0
Hepatitis B acute	0	0	0	0	0
Hepatitis B chronic	*NA	7	6	7	8
Hepatitis C acute	0	2	0	2	0
Hepatitis C chronic	*NA	165	167	176	206
HIV/AIDS Cumulative Living	190	185	182	185	182
HIV/AIDS Deaths	2	6	4	6	4
HIV/AIDS New	6	9	12	9	12
Meningococcal Disease	0	2	0	2	0
Pertussis	126	443	7	493	10
Salmonellosis	27	24	18	26	18
Shigellosis	3	1	10	1	11
STEC (enterohemorrhagic E. coli)	21	7	10	7	10
Syphilis - Primary and Secondary	13	6	8	6	9
Tuberculosis	3	5	6	5	6

*NA=Not Available

Notifiable Conditions Summary Jan - Nov 2013

The Seattle STD/HIV Prevention Training Center is excited to announce our **free** course **"Ask, Screen Intervene: Incorporating HIV Prevention into the Medical Care of Persons Living With HIV"** in both Spokane and Seattle!

Spokane, WA
February 3rd, 2014
10:30am – 3:00pm

Seattle, WA
March 10, 2014
8:45am – 1:00pm

This training (which includes refreshments) and Continuing Education Credits is free of charge, *but pre-registration is required*
www.seattlestdhivptc.org

ASI is designed to enhance clinicians' efforts to incorporate HIV prevention into the medical care of persons living with HIV.

3.75 CMEs **free** | 3.7 Nursing Contact Hours **free** | 0.4 CEUs **free**

Learn About:

- Effective **screening** for behavioral HIV transmission risk factors
- Delivering universal **prevention messages**
- Providing tailored **prevention interventions**
- The importance of **Partner Services** in the care of patients

Achieve These Objectives:

- Outline a correct approach for screening for STDs
- Address patient misconceptions about HIV transmission
- Provide brief behavioral interventions and referrals for more intensive interventions
- Initiate discussion of the five partner referral options with patients

Seattle STD/HIV
PREVENTION TRAINING CENTER