Eliminating Perinatal Transmission of Hepatitis B – Strategies for Hospital Personnel

Lynn Pollock, RN, M.S.N.

Immunization Action Coalition

Coordinator for Perinatal Hepatitis B Projects

July 2016
About IAC

• The Immunization Action Coalition (IAC) is a 501(c)(3) nonprofit that has worked for almost 25 years to increase immunization rates and prevent disease by creating and distributing educational materials for healthcare professionals and the public. CDC awarded IAC its Partners in Public Health Award for efforts “instrumental in achieving high levels of routine infant hepatitis B immunization.” IAC sponsors a national Hepatitis B Birth Dose Honor Roll that honors birthing institutions that vaccinate at least 90% of their newborns against hepatitis B.
Presentation outline

• PHBPP Coordinator’s role with hospital personnel

• Overview and goals of *Check Perinatal Transmission at the Door* project
  • Objectives of project
  • Importance of intervention
  • Screening tool

• Overview and goals of *Give Birth to the End of Hep B* project
  • Importance of intervention
  • Tools available for hospital personnel

• Other useful resources
PHBPP Coordinator’s role with hospital personnel

- Establish a personal (preferably face-to-face) connection with the hospital’s maternity nurse leader – this may or may not be your referral person
- Use hospital errors as teaching opportunities
- Plan a site visit annually or a minimum of every 3 years
  - Review the hospital’s perinatal hepatitis B policy/procedures prior to the visit if possible
  - Combine your site visits with training
  - Provide resource materials, including handouts and web site addresses
Check Perinatal Transmission at the Door

And Give Birth to the End of Hep B

July 2015
“Check Perinatal Transmission at the Door” project

• Describe the impact of perinatal transmission of hepatitis B virus (HBV)

• Describe the potential long term complications of hepatitis B infection

• Describe the current Centers for Disease Control & Prevention (CDC) Advisory Committee on Immunization Practices (ACIP) recommendations for identification and management of hepatitis B surface antigen (HBsAg) positive and unknown women in labor

• Identify the gaps in documentation that lead to increased incidence of HBV in newborns

• Assess the importance of using a standardized process for identification of HBsAg-positive mothers in obstetrics and reporting results to your health department's Perinatal Hepatitis B Prevention Program (PHBPP)
The impetus for HBsAg Screening project...

A 2012 study titled “Low Levels of Knowledge and Preventative Practices Regarding Vertical Hepatitis B Transmission among Perinatal Nurses,” published in the *Journal of Obstetric, Gynecologic, & Neonatal Nursing* looked at **512 nurses at 8 centers** and found:

- 80% of the nurses reported caring for a pregnant women with chronic HBV infection
- Only 51% provided routine education to patients on hepatitis B
  - 75% discussed prevention of mother to child transmission

More surprising were the results of pre-education seminar survey:

- Only 16% knew the risk of developing chronic hepatitis B in infected newborns
- Only 22% knew the usual symptoms of chronic hepatitis B

The good news is:

- In this study, statistically significant improvement in nursing knowledge was found after educational seminars were conducted.
- In 2015, IAC & AWHONN developed an educational webinar and screening checklist tool for labor & delivery nurses that is intended to enhance knowledge about hepatitis B and the prevention of perinatal hepatitis B virus transmission.

Overview and goals of IAC and AWHONN perinatal hepatitis B prevention pilot project

• Develop and conduct a training webinar about perinatal hepatitis B virus (HBV) transmission and prevention for labor & delivery nurses

• Develop and pilot test screening checklist tool for use in labor & delivery units to identify HBV-infected women

• Educate nurses about the importance of reporting the infants born to an HBsAg-positive mother to their state or local health department’s perinatal hepatitis B prevention program
Perinatal Nurse’s role

- Labor & delivery and newborn nursery nurses are the key to prevention.

- They have the tools and resources to:
  - Accurately identify HBsAg test results upon admission, and if test is not available, obtain it “STAT.”
  - Ensure that exposed infants receive PEP within 12 hours of birth.
  - Educate family on:
    - Seriousness of HBV infection
    - Need for completion of hepatitis B vaccine series, and need for post-vaccination serology testing and referral to the PHBPP
  - Refer case to Perinatal Hepatitis B Prevention Program (PHBPP)
Common serology errors

- HBsAg is the correct test to determine the presence of acute or chronic HBV infection
- HBsAg and HBsAb are easily confused. Anti-HBs and HBsAb are different names for the same test—antibody to hepatitis B surface antigen
- Errors happen and they are not rare
- Make sure that the delivering mother has been tested for HBsAg
Gaps in identification of high-risk newborns

- CDC estimated nearly 26,000 births occurred to HBsAg+ women in 2012, but state and local health department PHBPPs received reports of only 47% of the estimated births to infected women.*

* Personal communication CDC’s PHBPP
Labor & delivery HBsAg screening checklist for birthing mothers
Labor & Delivery HBsAg Admission Checklist for Birthing Mother

For your answers, please check "yes" or "no," and add check marks and your initials where indicated.

### STEP 1

<table>
<thead>
<tr>
<th>Task</th>
<th>YES</th>
<th>NO</th>
<th>NK</th>
<th>Add comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Check patient’s hepatitis B status</td>
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<tr>
<td>Was the recommended dose and route, i.e., HBsAg (HBV vaccine) given?</td>
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<tr>
<td>Was the test result obtained during this pregnancy (check from an earlier page)?</td>
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<tr>
<td>Is there a copy of the original lab/blood test report in the prenatal record (if any, refer to test results)?</td>
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</tbody>
</table>

**A** If any question above is answered no, then fill out chart A at right.

### STEP 2

<table>
<thead>
<tr>
<th>Task</th>
<th>YES</th>
<th>NO</th>
<th>NK</th>
<th>Add comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Screen patient for hepatitis B risk factors during this pregnancy</td>
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<td></td>
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<tr>
<td>She has had a prior hepatitis B exposure or infection</td>
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<tr>
<td>She has a HBsAg-positive sex partner</td>
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<tr>
<td>She has a history of recent injection drug use</td>
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<tr>
<td>She has had more than one sex partner in previous 6 months</td>
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<tr>
<td>She has been vaccinated or treated for a sexually transmitted disease</td>
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**A** If any question above is answered no, then fill out chart A at right.

### STEP 3

**IF** HBsAg test result is positive (whether STAT or routine):

<table>
<thead>
<tr>
<th>Action</th>
<th>Alerts &amp; Plans</th>
<th>Initial action</th>
<th>Add comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alert nurse to activate the newborn high-risk protocol and administer prophylaxis to the newborn within 6 hours of birth.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Educate mother that her baby is at risk for HBV transmission at birth and will need prophylaxis.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Notify health care provider of maternal HBsAg status.</td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

This checklist is a pilot project to improve the management of birthing mothers.

**SIGNATURE**

**A PARTNERSHIP OF** IMMUNIZATION ACTION COALITION
Saint Paul, Minnesota • www.immune.org

ASSOCIATION OF WOMEN’S HEALTH, OBSTETRIC AND NEONATAL NURSES
Washington, DC • www.awh.org

www.immunize.org/immunizationact coalition

ASSOCIATION OF WOMEN’S HEALTH, OBSTETRIC AND NEONATAL NURSES
Washington, DC • www.awh.org
**STEP 1**

<table>
<thead>
<tr>
<th>Check new patient’s hepatitis B status</th>
<th>YES</th>
<th>NO</th>
<th>RN init</th>
</tr>
</thead>
<tbody>
<tr>
<td>Was the recommended test ordered, i.e., HBsAg (not antiHBs, HBsAb, antiHBc, HBcAb)?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Was the test result obtained during this pregnancy (and not from an earlier pregnancy)?</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Is there a copy of the original HBsAg lab report in the prenatal record (not a transcribed test result)?</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

▲ If any question above is answered no, then fill out chart A at right. ▲
If any question in Step 1 or 2 indicates immediate need for HBsAg screening, do the following:

<table>
<thead>
<tr>
<th>Action</th>
<th>when done, add check</th>
<th>RN init</th>
</tr>
</thead>
<tbody>
<tr>
<td>Draw hepatitis B surface antigen (HBsAg) test from mother STAT.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Verify with the lab that they will call L&amp;D and nursery with the STAT HBsAg test result as soon as it is available.</td>
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<td></td>
</tr>
<tr>
<td>Notify the responsible nursery nurse that the HBsAg test result is pending.</td>
<td></td>
<td></td>
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<tr>
<td>Contact the lab if the test result is not back by the expected time.</td>
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<td>Notify the responsible nursery nurse that if HBsAg results are still pending 12 hours after birth, the infant should immediately be administered postexposure prophylaxis based on infant's birth weight:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- &lt;2000 grams administer HBIG and hepatitis B vaccine</td>
<td></td>
<td></td>
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<td>- ≥2000 grams administer hepatitis B vaccine</td>
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Complete Steps 2 and 3.
Step 1—Checking maternal HBsAg status

• Was the correct test—HBsAg—ordered? Y/N (Note: anti-HBs, HBsAb, and anti-HBc are NOT correct tests to determine hepatitis B infection)

• Was the result obtained during this pregnancy? Y/N

• Is there a copy of the original HBsAg report in the prenatal record? Y/N

If any of these are answered no (Go to Chart A), order HBsAg blood test “STAT.”

• Verify that the lab will call L&D and nursery with result.

• Notify nursery that HBsAg result is pending.
**STEP 2**

<table>
<thead>
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<th>Screen new patient for hepatitis B risk factors during this pregnancy</th>
<th>YES</th>
<th>NO</th>
<th>RN init</th>
</tr>
</thead>
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<tr>
<td>She has had clinical hepatitis since previous hepatitis B testing.</td>
<td></td>
<td></td>
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<tr>
<td>- ( \geq 2000 \text{ grams} ) administer hepatitis B vaccine</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Complete Steps 2 and 3.
### STEP 3

**If HBsAg test result is positive (whether STAT or routine):**

<table>
<thead>
<tr>
<th>Action</th>
<th>not applicable</th>
<th>when done, add check</th>
<th>RN init</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alert nursery staff that the newborn is high risk and will need postexposure prophylaxis with hepatitis B immune globulin (HBIG) and hepatitis B vaccine within 12 hours of birth.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Educate mother that her baby is at risk for HBV transmission at birth and will need:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Prophylaxis beginning within 12 hours of birth and continuing through until the HepB vaccine series is completed.</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>- Lab work after HepB series is completed to determine if infant is infected with HBV.</td>
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</tr>
<tr>
<td>- Referral of mother and infant to Perinatal Hepatitis B Prevention Program for follow up.</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Notify your Perinatal Hepatitis B Prevention Program of birth to HBsAg positive mother.</td>
<td></td>
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<td></td>
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</table>
Give birth to the end of Hep B

Hepatitis B: What Hospitals Need to Do to Protect Newborns

How to prevent perinatal HBV transmission

Immunization Action Coalition (IAC)
Why a birth dose?

• The primary goal of administering hepatitis B vaccine at birth is to protect babies from chronic HBV infection, which can lead to liver failure and liver cancer.
  
  - Most morbidity and mortality from HBV-related liver failure and liver cancer occurs in people with chronic HBV infection.
  
  - Treatment can decrease liver damage and the chance of liver cancer, but there is no cure.
  
  - Many people with chronic HBV are not aware of their infection and can unknowingly spread the infection.
Effectiveness of hepatitis B vaccine starting at birth?

• Post-exposure prophylaxis of infants born to infected mothers is 85–95% effective when started within 12 hours of birth.
  - Post-exposure prophylaxis: hepatitis B vaccine + hepatitis B immune globulin (HBIG) at birth, completion of hepatitis B vaccine series, post-vaccination testing for outcomes.
  - Timing of the birth dose is critical to achieve the highest rates of protection.

• Hepatitis B vaccination starting at birth even without HBIG will prevent transmission of the infection in 70–95% of infants born to chronically infected mothers.
The Opportunity

• Hospitals have an opportunity to protect the future health of infants born in their facilities.
  - Each year in the U.S., more than 24,000 infants are born to mothers who are infected with HBV, and not all of their infants receive post-exposure prophylaxis.
  - Some infants are first exposed shortly after birth to HBV by household members or caretakers who have chronic HBV infection.

• Most infants can be protected if hospitals routinely provide a birth dose of hepatitis B vaccine to all newborn infants.

The Problem

- Many infants in the United States are not receiving the birth dose of hepatitis B vaccine.
  - Only 74.2% of U.S. infants received hepatitis B vaccine within 3 days of birth.*
  - States’ coverage rates varied between 44.8% and 88.0%.*
- There is room for improvement in protecting newborn infants in every state.

*Reference: Data from 2013 National Immunization Survey, at www.cdc.gov/mmwr/preview/mmwrhtml/mm6334a1.htm
Why should we give hepatitis B vaccine to all newborns?

• Prevents mother-to-infant transmission: Prevents 70–95% of infection among infants born to HBsAg-positive women

• Prevents household transmission: Protects infants from infected family members and other caregivers

• Protects when medical errors occur: Provides a safety net to prevent perinatal HBV infection when medical errors occur
Because errors occur, children are chronically infected with hepatitis B (HBV)

A universal hepatitis B vaccine birth dose policy helps to protect newborn infants from human error and resulting chronic HBV infection which can cause serious liver disease.
All birthing hospitals should:

1. Implement policies and procedures to administer the recommended universal hepatitis B vaccine birth dose, ensuring that every newborn infant receives hepatitis B vaccine at birth, or no later than hospital discharge.

2. Implement standing orders for administration of hepatitis B vaccine as part of routine medical care of all medically stable infants weighing >2,000 g at birth.

3. Follow national recommendations for prophylaxis of all newborn infants born to women with HBsAg-positive test results, and all infants born to women whose HBsAg status is unknown.

All birthing hospitals should also:

4. Ensure that a copy of the original laboratory report from the mother’s HBsAg screening test is placed in the infant’s medical record.

5. Educate staff and parents about the importance of administering the first dose of hepatitis B vaccine in the hospital or birthing facility, not delaying it until after discharge.

Only in rare circumstances, and on a case-by-case basis, should the first dose be delayed until after discharge. Such a delay should be considered only for an infant who weighs ≥2,000 grams and whose mother is HBsAg negative during this pregnancy. If the first dose is delayed, then a physician’s order to withhold the dose should be placed in the infant’s medical record along with a copy of the mother’s original laboratory report demonstrating that she was HBsAg negative during this pregnancy.

Hepatitis B birth dose is recommended by ACIP, AAP, AAFP, and ACOG.

“Administer monovalent Hep B vaccine to all newborns before hospital discharge.”

Summary

Birthing facilities play a critical role in preventing chronic hepatitis B infections through timely initiation of post-exposure prophylaxis, and by creating a birth dose safety net for eliminating perinatal hepatitis B transmission.

The most important steps for birthing facilities to take are:

• Implement a universal birth dose policy
• Ensure universal review of the original maternal HBsAg test results
• Implement standard admission orders for timely administration of hepatitis B vaccine to all newborn infants
• Follow national recommendations for prophylaxis of newborn infants
  - Infants born to women with HBsAg-positive test results and
  - Infants born to women whose HBsAg status is unknown

Complete 2005 ACIP Recommendations are available at www.cdc.gov/mmwr/PDF/rr/rr5416.pdf
Two Tools for Promoting the Hepatitis B Birth Dose

- “Hepatitis B: What Hospitals Need to Do to Protect Newborns” – a comprehensive guide
- Hepatitis B Birth Dose Honor Roll

www.immunize.org/protect-newborns
Hepatitis B: What Hospitals Need to Do to Protect Newborns

Reviewed and endorsed by

• American Academy of Family Physicians

• American Academy of Pediatrics

• American College of Obstetricians and Gynecologists

• Centers for Disease Control and Prevention

Birth Dose Guidebook Sections

1. Preventing Hepatitis B in Newborns: What’s Needed
2. Reducing Medical Errors: Case Reports
3. Addressing the Problem: Practical Tools
4. Obtaining Support: Helpful Contacts
5. Appendix: Authoritative Resources

www.immunize.org/protect-newborns/guide
IAC’s Hepatitis B Birth Dose Honor Roll

Recognizes hospitals and birthing centers that have attained 90% or greater coverage rates for administering hepatitis B vaccine at birth.

www.immunize.org/honor-roll/birthdose
Criteria for Birth Dose Honor Roll

• At least 90% of babies (regardless of weight) born during a 12-month period receive hepatitis B vaccine prior to discharge (including those infants whose parents refuse).

• Written policies, procedures, and protocols for implementing the universal hepatitis B vaccine birth dose are in place and include the following:

Note: The following criteria are generally required, but exceptions may be made.

- Parents are informed about the importance of the hepatitis B vaccine birth dose and that it is recommended for all newborns.

- All infants routinely receive hepatitis B vaccine before hospital discharge.
Criteria for Birth Dose Honor Roll – cont.

- Staff review the mother’s chart to make sure the correct test, HBsAg, was ordered during this pregnancy. The result is also reviewed. Note: It is recommended to review a copy of the original test report, if at all possible.

- If HBsAg test result is not on mother’s chart, it is ordered ASAP.

- Infants born to HBsAg-positive mothers receive hepatitis B vaccine and hepatitis B immune globulin (HBIG) within 12 hours of birth.

- Infants born to mothers whose HBsAg status is unknown receive hepatitis B vaccine within 12 hours of birth, and also receive HBIG within 12 hours of birth if they weigh less than 2,000 grams.

- Newborn admission orders include a standing order to administer hepatitis B vaccine to all infants prior to discharge.

- Notification of the state or local health department’s perinatal hepatitis B prevention program is done prior to discharge (or as soon as known, if after discharge) for all mothers whose HBsAg test result is positive.
Enrollment into the Honor Roll

- Applications at www.immunize.org/honor-roll/birthdose/apply.aspx
- Review by IAC
- Notification of acceptance
- Certificate of enrollment
- Placement on Birth Dose Honor Roll web page
- Recognition in IAC Express
  www.immunize.org/express
- To subscribe to IAC Express
  www.immunize.org/subscribe
Birth Dose
Honor Roll
Certificate
Promoting the Hepatitis B Birth Dose Honor Roll to Birthing Facilities

Do you qualify for the Hepatitis B Birth Dose Honor Roll? If so, apply today.

The Immunization Action Coalition (IAC) is recognizing hospitals and birthing centers that have achieved 90% or greater coverage rates for administering hepatitis B vaccine at birth and meet specific additional criteria. These criteria define the important elements of written birth dose policies aimed at protecting newborns, including when medical reasons exist.

Criteria for inclusion in the Honor Roll:
- Hospitals must have achieved 90% or greater for administering hepatitis B vaccine at birth.
- Hospitals must have written birth dose policies that include all major elements (eligibility, consent, notification, and vaccination).
- Hospitals must have an active birth dose program.
- Hospitals must have an ongoing process for assessing and improving birth dose coverage.
- Hospitals must have a mechanism for tracking birth dose coverage.
- Hospitals must have a plan for addressing barriers to birth dose delivery.
- Hospitals must have a system for verifying birth dose delivery.
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- Hospitals must have an ongoing process for assessing and improving birth dose coverage.
- Hospitals must have a plan for addressing barriers to birth dose delivery.
- Hospitals must have a system for verifying birth dose delivery.
- Hospitals must have a plan for follow-up.
- Hospitals must have a mechanism for tracking birth dose coverage.
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- Hospitals must have an ongoing process for assessing and improving birth dose coverage.
More about the Birth Dose Honor Roll

- Hepatitis B Birth Dose Honor Roll home page, including the criteria for inclusion:
  www.immunize.org/honor-roll/birthdose

- Listing of hospitals on the Birth Dose Honor Roll:
  www.immunize.org/honor-roll/birthdose/honorees.asp

- Application for enrollment into the Honor Roll
  www.immunize.org/honor-roll/birthdose/apply.aspx

- Do You Qualify for the Birth Dose Honor Roll?
  www.immunize.org/catg.d/p2205.pdf (color)
  www.immunize.org/catg.d/p2206.pdf (B&W)
Promoting the Birth Dose

www.immunize.org/protect-newborns/birthdose-handout-co.pdf

www.immunize.org/protect-newborns
What You Can Do

- Download the guidebook, *Hepatitis B: What Hospitals Need to Do to Protect Newborns* [www.immunize.org/protect-newborns](http://www.immunize.org/protect-newborns)
- Share the guide with hospitals and birthing centers to help them improve birth dose coverage rates
- Distribute the handout “Give birth to the end of Hep B,” to educate others about the importance of the hepatitis B birth dose
- Distribute the handout “Do you qualify for the Hepatitis B Honor Roll? If so apply today.” to birthing facilities
- If you are a birthing facility and have met the criteria, apply for enrollment into the Birth Dose Honor Roll [www.immunize.org/honor-roll/birthdose/apply.aspx](http://www.immunize.org/honor-roll/birthdose/apply.aspx)
Perinatal hepatitis B resources from CDC

- CDC modules on perinatal hepatitis B include free CEUs: [www.cdc.gov/vaccines/ed/hep-b](http://www.cdc.gov/vaccines/ed/hep-b)


- **Part 1: Immunization of Infants, Children, and Adolescents** Hepatitis B Immunization Management of Preterm Infants Weighing <2,000 g, by Maternal Hepatitis B Surface Antigen (HBsAg) Status, Corrected Table: [www.cdc.gov/HEPATITIS/HBV/PDFs/CorrectedTable4.pdf](http://www.cdc.gov/HEPATITIS/HBV/PDFs/CorrectedTable4.pdf)


- Algorithms illustrating delivery hospital procedures to prevent perinatal HBV transmission when maternal HBsAg test results are available: [www.cdc.gov/hepatitis/HBV/PDFs/PerinatalAlgorithm-Available.pdf](http://www.cdc.gov/hepatitis/HBV/PDFs/PerinatalAlgorithm-Available.pdf)

- Algorithms illustrating delivery hospital procedures to prevent perinatal HBV transmission when maternal HBsAg test results are unavailable: [www.cdc.gov/hepatitis/HBV/PDFs/PerinatalAlgorithm-Unavailable.pdf](http://www.cdc.gov/hepatitis/HBV/PDFs/PerinatalAlgorithm-Unavailable.pdf)


- Viral Hepatitis Populations: [www.cdc.gov/hepatitis/Populations/api.htm](http://www.cdc.gov/hepatitis/Populations/api.htm)
Perinatal hepatitis B resources from IAC

- **Give birth to the end of Hep B campaign**: [www.immunize.org/protect-newborns](http://www.immunize.org/protect-newborns)
- **Medical Errors Put Infants at Risk for Chronic Hepatitis B Virus Infection—Six Case Reports**: [www.immunize.org/protect-newborns/guide/chapter2/errors-case-reports.pdf](http://www.immunize.org/protect-newborns/guide/chapter2/errors-case-reports.pdf)
- **Two More Infants Chronically Infected with Hepatitis B Virus . . . the Medical Errors Continue**: [www.immunize.org/protect-newborns/guide/chapter2/more-case-reports.pdf](http://www.immunize.org/protect-newborns/guide/chapter2/more-case-reports.pdf)
Perinatal hepatitis B resources from other organizations


- Gaps in Hospital Policies and Practices to Prevent Perinatal Transmission of Hepatitis B Virus, Pediatrics, April 1, 2010: http://pediatrics.aappublications.org/content/125/4/704.long

- Low levels of knowledge and preventative practices regarding vertical hepatitis B transmission among perinatal nurses, JOGNN, July-August 2012: www.ncbi.nlm.nih.gov/pubmed/22697047


Questions?