GIVING BIRTH TO THE END OF HEPATITIS B:
PREVENTING PERINATAL HEPATITIS B TRANSMISSION

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New Jersey Immunization Network
Asians are the fastest growing racial group in US
- 5.8% of US (projected to be 10% in 2050)
- Chinese are the largest Asian subgroup (20%)

New Jersey has 4th largest Chinese population in US
- Behind NY, CA, TX, and surpassing HI
- NJ Chinese increased by 34% between 2000-2010

Cultural and Language Barriers
- Correlate to access and outcome

Health Differences
- Higher rates of certain diseases
- Ethnic differences- drug side effects, etc
Burden of Hepatitis B Virus

- 350-400 Million with chronic hepatitis B (CHB) infection in the world\(^1\)
  - More prevalent than HIV (35M) and HCV (170M) globally

- CHB is the leading cause of primary liver cancer (HCC) worldwide\(^2\)
  - HCC rates increasing in US (MMWR 2010)
  - 4-5,000 deaths a year in US due to cirrhosis and liver cancer

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Incidence of HCC Continues to Rise

![Graph showing the incidence of HCC per 100,000 population from 1979 to 2004. The incidence shows a steady increase over time.]
Chronic Hepatitis B Infection

- HBV is major US health disparity
  - 1 out of 10 Asians (vs 0.3%)
  - > ½ with HBV in the US are Asian
  - Other foreign born: 22% Latin America, 13% Africa, 7.5% Europe

- 2/3 of those infected are unaware

- 1 of 4 may develop cirrhosis or HCC
  - Most with CHB are asymptomatic until ESLD
  - Early intervention can prevent & cost-effective²

Hepatitis B by Year, United States, 1966 - 2000

Source: NNDSS
We have the tools, why are we missing the mark?

- 1984: HBV/HBIG recommended for infants of HBsAg+ mothers
- 1991: HBV vaccine series added to newborn vaccine schedule
- 1999: HBV birth dose recommended for **all infants**
  - Recommended by ACIP, CDC, AAP, NQF, ACOG
- **National Average low**
  - 69% of infants get HBV vax by 3rd day of life (compared to 96.6% receive vit K at birth*)

In 2010 Institute of Medicine

“The goal of eliminating perinatal HBV transmission has not been achieved largely because of **incomplete coverage of newborns with a birth dose of hepatitis B vaccine.**”

*http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6245a4.htm?s_cid=mm6245a4_w

Data Source: National Immunization Survey, CDC
It’s Time to Eliminate Perinatal HBV
A goal of the National Viral Hepatitis Action Plan

- Vertical transmission (mother to baby, largely during childbirth) accounts for 35-50% CHB transmission (higher in Asians)
  - 1,000 infants a year in the US are infected

- Chronic (potentially lifelong) HBV infection develops in
  - 90% of HBV infected infants
  - 30% of infected children aged <5 years
  - <5% of infected persons aged ≥5 years (usually resolve)
Prevention of Perinatal Transmission of CHB

- Passive-active immunoprophylaxis

- Passive= HBIG, Active= HBV vaccine
- Vaccination reduces transmission rate from mom to infant to 3-7%
- Without vaccination, up to 70-90% transmission rate in HBeAg+

Wong VC, Ip HM, Reesink HW et al. (1984) Prevention of the HBsAg carrier state on newborn infants of mothers who are chronic carriers of HBsAg and HBeAg by administration of hepatitis B vaccine and hepatitis B immunoglobulin. Double-blind randomized placebo-controlled study. Lancet 1(8383):921-926.
CDC estimates 1000 infants a year acquire HBV perinatally in US

- **Failure of healthcare system**
  - Mother not screened during pregnancy
    - Must be repeated for each pregnancy
  - Mother not identified as HBV+ at delivery
    - No Labs available, Error in transcription
  - Infants don’t receive proper vaccination
  - Infant don’t receive post-vaccination serology test

FQHC serving largely Chinese population in NYC
- 2 sites in Manhattan, 1 in Queens
- High prevalence of HBV, 12% of all patients

~720 pregnancies a year
- ~15% with maternal HBsAg+

From 2007-2010, 5 infants at CBWCHC acquired HBV via Vertical transmission
- Cases of VT were examined to identify gaps in care
- Hep B Moms program was formed from the lessons learned
Cases of HBV Infected Infants at CBWCHC (2007-10)

All mothers with lab data were HBeAg+. No infants were breastfed (though not a risk factor and recommended by AAP and WHO for HBV+ mothers). All infants completed HBV vaccine series

<table>
<thead>
<tr>
<th>Last recorded viral load before delivery (copies/mL)</th>
<th>Discussed antiviral tx</th>
<th>Antiviral Tx</th>
<th>Date &amp; Type of delivery</th>
<th>HBIG</th>
<th>Sent to China?</th>
<th>Initial HBsAg+ Test (infant)</th>
<th>Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>118,000,000</td>
<td>N</td>
<td>N</td>
<td>3/08 CS</td>
<td>Y</td>
<td>Y</td>
<td>35 mo</td>
<td>No antiviral tx and VL &gt;10^8, infant went to China at 6 mos, late serology</td>
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<tr>
<td>1,422,000,000</td>
<td>Y</td>
<td>N</td>
<td>3/09 NSVD</td>
<td>N</td>
<td>N</td>
<td>8 mo</td>
<td>No HBIG given by hosp, no antiviral tx and VL &gt;10^9 copies/ml</td>
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<tr>
<td>911,000,000</td>
<td>Y</td>
<td>LAM for 6 wks</td>
<td>4/09 NSVD</td>
<td>Y</td>
<td>N</td>
<td>10 mo</td>
<td>Antiviral Tx prescribed, but VL still &gt;10^8 c/ml and HBV transmission in sibling</td>
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<tr>
<td>UN</td>
<td>UN</td>
<td>UN</td>
<td>10/09 NSVD</td>
<td>Y</td>
<td>N</td>
<td>9 mo</td>
<td>Mother was not CBWCHC pt.</td>
</tr>
<tr>
<td>UN</td>
<td>N</td>
<td>N</td>
<td>12/10 CS</td>
<td>Y</td>
<td>Y</td>
<td>9 mo</td>
<td>Mother was not CBWCHC pt., but was on antiviral before pregnancy and discontinued during pregnancy</td>
</tr>
</tbody>
</table>
Hep B Moms Program Protocol

HBV Screening at Initial Prenatal Visit

HBV+ patients enrolled in Hep B Mom’s Program

Maternal HBV Care
• Identify high-risk patients & offer anti-viral tx

Infant Delivery
• HBIG/HBV Vax 1

Pediatric Care
• HBV Vax 2 & 3
• Post-vax Serology

Care Manager (CM)
• Provides in-person counseling
• Confirms pt receives HBV care & follows recommendations
• Reviews delivery records
• Confirms pediatric immunization & serology
• Maintain CM database
• Collaborate w DOHMH
Hep B Moms Roadmap: Educate Mom

IF YOU HAVE HEPATITIS B, PROTECT YOUR BABY
USE THIS CHART TO TRACK YOUR CARE AND YOUR BABY’S CARE

If you have hepatitis B, the virus can be transmitted to your newborn through your blood at birth. The baby can then carry this serious disease for a lifetime. To prevent infection, make sure your baby is protected with immunizations. Also, see your doctor regularly to take care of your hepatitis B and avoid liver damage.

DURING PREGNANCY
- Get blood tests:
  - Hep B Viral Load
  - Liver tests
  - Hep B e antigen
- If your disease is severe, your doctor may talk to you about taking hepatitis B medication.
- Make sure your spouse and those living with you are tested for hepatitis B.
- See a doctor regularly for hepatitis B.

AT BIRTH
- Tell the staff at the hospital you have hepatitis B.
- Baby must receive 2 shots within 12 hours of birth to protect from infection.
  - One shot of hepatitis B immunoglobulin (HBIG)
  - 1st shot of the hepatitis B vaccine
- Once baby gets the HBIG shot and hepatitis B vaccine, it is safe to breastfeed. Hospital staff will give you an immunization card to track baby’s shots. Bring this card to all of your baby’s doctor visits.

1-2 MONTHS
- Make sure your baby receives the 2nd shot of the hepatitis B vaccine.

6 MONTHS
- Make sure baby receives the 3rd shot of hepatitis B vaccine. This shot should not be given before 6 months, or baby will not be protected.

9-15 MONTHS
- Make sure baby gets a blood test to check if he or she is protected after the shots. This is special for babies born to mothers with hepatitis B.
  - HbsAg
  - HbsAb
- Check the test result:
  - Protected
  - Not Protected
  - Infected
- * If baby is not fully protected from hepatitis B, the doctor will repeat the vaccine.

IF YOUR BABY IS CARED FOR IN CHINA
- The caretaker must tell the new doctor that baby’s mother has hepatitis B. It is very important to make sure the baby gets the 2nd and 3rd dose of the vaccine.
- Your baby must get the 3rd shot at 6 months and not earlier.
- Ask the doctor to test your baby by 15 months to check if he or she is protected from hepatitis B. This is not done for all babies, so the caretaker should request it because it is important for your baby. Keep a copy of the results.
- When your child returns to the United States, bring your child’s vaccination records from China, and schedule a check up for your child. Immunization records are needed for children to enter to school.

Charles E. Wang Community Health Center
Adherence with Postvaccination Serologic Testing Recommendations

- Postvaccination serologic testing occurred in 63% of case-managed infants from the 2012 birth cohort (U.S. Perinatal Hepatitis B Prevention Program)

- Without post-vaccination serologic testing:
  - Infected infants are not identified for continuing care and treatment
  - Infants not responding to vaccination are not identified for revaccination and remain susceptible to infection from household and other exposures
Gap: Pediatrician unaware (or forgets) that infants mother is HBV+, & does not order post-vaccination serology for infant*

The Bridge:
Affix “Hepatitis B Perinatal Exposure” sticker on immunization card for such infants.

- Documents HBIG administration (no designated space on vax records)
- Reminds that HBV serology should be done 9-18 mos sticker
- Indicates which tests and has place for results

- Sticker placed in Hospital Nursery (where HBIG/HBV vax#1 given)

*If infant is not immune, needs 2nd round of HBV vax series or should be evaluated for HBV infection

We would like to acknowledge to Stanford’s Asian Liver Center for the idea to develop the sticker.
Why should we give hepatitis B vaccine to all newborns?

Hospitals have an opportunity to protect the future health of infants born in their facilities

- >24,000 infants/yr are born to HBV+ mothers and not all of their infants receive post-exposure prophylaxis
  - Prevents mother-to-infant transmission: Prevents 70-95% of infection among infants of HBsAg + 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

Smith EA. Pediatrics 1012;129:609-616; MMWR 2005 ;57(RR-8):1-20
IAC’s Hepatitis B Birth Dose Honor Roll

www.immunize.org/honor-roll/birthdose

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

13 hospitals alone in New York City are on the Honor roll.
--Only 1 in the entire state of NJ is!
Hepatitis B Birth Dose Tools

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

www.immunize.org/protect-newborns

Reviewed and endorsed by:
American Academy of Family Physicians (AAFP), American Academy of Pediatrics (AAP), American College of Obstetricians and Gynecologists (ACOG), Centers for Disease Control and Prevention (CDC)
192 hospitals examined; Reviewed 4762 mothers

- 18 infants born to HBV+ mothers
  - Only 62% had both HBIG/HBV within 12 hours of birth
    - 14% did not receive HBV vaccine
    - 20% did not receive HBIG

- 320 infants born to mothers with unknown HBV status
  - 52% vaccinated within 12 hours
  - 20% vaccinated before discharge

Strongest predictor of birth dose vaccine was having a hospital protocol!
Start protecting your baby at birth with the first dose of the hepatitis B vaccine.

Is the hepatitis B vaccine safe?
Hepatitis B vaccine is very safe. The most common side effect is soreness at the injection site or slight fever. Serious side effects are rare.

Where can I get more information?
- Your Health Care Provider
- NJ Department of Health and Senior Services
  Vaccine Preventable Disease Program
  609-826-4860
  http://nj.gov/health/cd/vpdp/index.shtml
- Centers for Disease Control and Prevention (CDC)
  http://www.cdc.gov/hepatitis/b/index.htm
- Immunization Action Coalition (IAC)
  www.immunize.org/birthdose

To print this brochure, please visit:

Please consult with your health care provider for your specific needs. This brochure is not a substitute for medical advice.

Special thanks to the Washington State Department of Health for permission to modify this brochure.
What is hepatitis B disease?
Hepatitis B disease is caused by a virus that attacks the liver. It can lead to severe illness, liver cancer and, in some cases, death.

Many people who get hepatitis B do not look or feel sick. Others may have a loss of appetite, stomach pain, extreme tiredness or yellowing of the skin or eyes.

How is hepatitis B spread?
Hepatitis B virus can spread by:
- contact with blood or certain body fluids of an infected person
- an infected mother to her newborn during childbirth
- using unsterile needles for injecting drugs, body piercing or tattooing
- using contaminated razors, toothbrushes, wash cloths and nail clippers
- unprotected sex
- human bites
- living with someone who has hepatitis B infection

Hepatitis B is NOT spread through food or water, kissing, sharing eating utensils, breastfeeding or coughing. The virus is not found in sweat, tears or urine.

Why should pregnant women be concerned about hepatitis B?
A mother with hepatitis B can spread the disease to her newborn. Babies are less able to fight hepatitis B infection than older children or adults. If a baby is infected, there is a 90% chance he or she will develop chronic hepatitis B, the most serious form of the disease.

Chronic hepatitis B can eventually lead to serious health problems, including liver damage, liver cancer, and even death.

How could my baby come in contact with the hepatitis B virus?
In many cases, the hepatitis B virus passes from mother to baby during birth when the mother does not know she is infected. In other cases, the virus is spread to the baby during close contact with an infected family member, caregiver or friend. Most people who are infected with hepatitis B do not feel sick and have no idea they carry this virus.

What can I do to protect my baby?
Get your baby vaccinated! The hepatitis B vaccine is given as 3 or 4 shots, depending upon the brand of vaccine used. After the first shot is given in the hospital, the next shot is usually given at 1-2 months of age. The last shot is given between 6 months and 18 months of age. Ask your doctor when your baby needs to come back for the next shot in the series.

Infants born to mothers with hepatitis B infection will need to receive the hepatitis B immunoglobulin (HBIG) shot AND the first dose of hepatitis B vaccine within 12 hours of birth.

You and your baby are at higher risk for hepatitis B infection if you, your parents or someone you live with was born in:
- Africa
- Alaska
- Eastern Europe
- Middle East
- South America
- South Asia
- Western Pacific

CDC recommends that all babies get the first dose of the hepatitis B vaccine before leaving the hospital.
But the infants mother doesn’t have Hep B. Why vaccinate at birth—can’t it wait?

- There are other routes of infection besides vertical transmission during infancy
  - Household contacts (family members, multigenerational households, siblings)
  - Caretakers (nannies, babysitters)
  - Other contacts- children (bites, open wounds), healthcare settings

- HBV is very infectious
  - 50-100x more infectious than HIV
  - Virus can live on a surface for 7 days
But the infants mother doesn’t have Hep B. Why vaccinate at birth- can’t it wait?

- 90% of infants who are infected become chronically infected (lifelong)- why even expose them to:
  - Incr mortality from risk of HCC, cirrhosis
  - Require lifelong medical care, not to mention stigma and potential discrimination
  - This is first cancer prevention drug

- Consider…
  - NJ is a very diverse state with many individuals from HBV endemic areas (80% of the world)
  - Do you know the HBV status of everyone the baby will come in contact with?
SCREENING FOR HEPATITIS B VIRUS INFECTION IN NONPREGNANT ADOLESCENTS AND ADULTS

CLINICAL SUMMARY OF U.S. PREVENTIVE SERVICES TASK FORCE RECOMMENDATION

<table>
<thead>
<tr>
<th>Population</th>
<th>Asymptomatic, nonpregnant adolescents and adults who have not been vaccinated for hepatitis B virus (HBV) infection and other high-risk persons (including those who were vaccinated before being screened for HBV infection)</th>
</tr>
</thead>
</table>
| Recommendation | Screen persons at high risk for HBV infection  
Grade: B |

**Risk Assessment**

Important risk groups for HBV infection with a prevalence of ≥2% that should be screened include:

- Persons born in countries and regions with a high prevalence of HBV infection (≥2%)
- U.S.-born persons not vaccinated as infants whose parents were born in regions with a high prevalence of HBV infection (≥8%), such as sub-Saharan Africa and southeast and central Asia
- HIV-positive persons
- Injection drug users
- Men who have sex with men
- Household contacts of persons with HBV infection

For more information on countries and regions with a high prevalence of HBV infection, visit www.cdc.gov/mmwr/preview/mmwrhtml/rr5708a1.htm.

**Screening Tests**

A U.S. Food and Drug Administration–approved hepatitis B surface antigen (HBsAg) test followed by a licensed, neutralizing confirmatory test for initially reactive results should be used to screen for HBV infection. Testing for antibodies to HBsAg (anti-HBs) and hepatitis B core antigen (anti-HBc) is also done as part of a screening panel to help distinguish between infection and immunity.

Diagnosis of chronic HBV infection is characterized by persistence of HBsAg for at least 6 mo.

**Treatment**

HBV treatment consists of antiviral regimens. Approved first-line treatments are pegylated interferon-α2a, entecavir, and tenofovir. Duration of treatment varies depending on the time required to suppress HBV DNA and normalize alanine aminotransferase levels; the presence of HBsAg, co-infection, and cirrhosis; and the choice of drug.

**Balance of Benefits and Harms**

There is moderate certainty that screening for HBV infection in persons at high risk for infection has moderate net benefit.
Collaborations to Improve Identification and Care for Chronic Hepatitis B Virus (HBV) Infection among Persons in the United States who were Born in Countries with Intermediate-High (>2%) HBV Prevalence (CDC-RFA-PS14-1414)

This program is intended to improve the capacity of health-care providers and other stakeholders serving persons born in countries with intermediate-high HBV infection prevalence to increase the identification of persons with chronic HBV and link them to high-quality, ongoing HBV-directed medical care. A coalition of key stakeholders (i.e. community-based organizations, health departments, specialists in HBV care, and primary-care providers) serving foreign-born persons from countries with intermediate-high HBV prevalence was funded to develop and implement these services. Partners will collaborate to implement screening and case-finding activities; conduct community outreach, patient navigation, case management, and other support services; implement training of primary-care staff to enhance screening, monitoring, management and referral practices; and implement activities to increase community and health professional awareness of hepatitis B. Expected outcomes include meeting or exceeding targets for testing of persons born in countries with intermediate-high HBV prevalence each year (at least 1,000 individuals), increase linkage to ongoing medical services for persons who are identified with chronic HBV infection, improve the quality of medical care for persons with chronic HBV that is provided in primary-care practice, and in the long-term decreases in HBV related morbidity and mortality and reductions in health disparities among foreign-born populations.

CDC has awarded a total of $900,000 to the following organizations:

1. Saint Barnabas Medical Center in partnership with Charles B. Wang Community Health Center (Project title: The Northern New Jersey and New York City Collaborative Hepatitis B Program - Building Bridges to Liver Health)
3. Regents of the University of California at Davis (Project title: SCrATCH – Sacramento Collaborative to Advance Testing and Care of Hepatitis B)
Free HBV Screening Coupon

If you or your parents are from ONE OF THESE COUNTRIES...
You are at risk for Hepatitis B!

Hepatitis B is the world’s leading cause of liver cancer

Do you know your status?
Get tested for free!
2 out of 3 with Hepatitis B are not aware. Get tested at one of the locations on the back. LiverBWell.com
Get Your Free Test — Visit One of Our Hepatitis B Screening Sites Today!
Building Bridges to Liver Health: A Northern New Jersey & New York City Hepatitis B Collaborative Program
LiverBWell.com

NORTHERN NEW JERSEY — You Must Bring This Coupon

<table>
<thead>
<tr>
<th>CENTER FOR ASIAN HEALTH</th>
<th>SAINT BARNABAS MEDICAL CENTER OUTPATIENT LABS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Call for appointment</strong></td>
<td><strong>Walk-In</strong></td>
</tr>
<tr>
<td>Phone: 973.322.6888</td>
<td>94 Old Short Hills Road, Livingston, NJ 07039</td>
</tr>
<tr>
<td>Hours: M-F 9:00 AM– 5:00 PM</td>
<td>(Saint Barnabas Medical Center)</td>
</tr>
<tr>
<td>101 Old Short Hills Road, Suite 408, West Orange, NJ 07052</td>
<td>Hours: M – Th: 6 am – 6 pm</td>
</tr>
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<td></td>
<td>F: 6 am – 4 pm S: 6 am – 1 pm</td>
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<td><strong>NEW YORK CITY</strong></td>
<td>200 South Orange Avenue, Suite 105, Livingston, NJ 07039</td>
</tr>
<tr>
<td><strong>CHARLES B. WANG COMMUNITY HEALTH CENTER</strong></td>
<td>(Ambulatory Care Center)</td>
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<td><strong>Call for Appointment</strong></td>
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<td>T, Th: 6 am – 6 pm S: 6 am – 2 pm</td>
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<tr>
<td>Manhattan:</td>
<td>189 Eagle Rock Avenue, Roseland, NJ 07068</td>
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<tr>
<td>268 Canal Street, New York, NY 10013</td>
<td>Hours: M – F: 6:30 am – 5 pm</td>
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<tr>
<td>Phone: 212.379.6998</td>
<td>560 Springfield Avenue, Suite 104, Westfield, NJ 07090</td>
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<td></td>
<td>Hours: M – F: 8 am – 4 pm</td>
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<td>Queens:</td>
<td>382 Bloomfield Avenue, Caldwell, NJ 07006</td>
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<tr>
<td>136-26 37th Avenue, Flushing, NY 11354</td>
<td>Hours: M – F: 7 am – 5 pm</td>
</tr>
<tr>
<td>Phone: 718.866.1212</td>
<td>Th: 7 am – 7 pm S: 7 am – 3 pm</td>
</tr>
</tbody>
</table>

This is a lab requisition for:
(Please fill out your name) First Name __________________________ Last Name __________________________

For NJ Lab Personnel:
- Patient must complete consent form (Lab results will be sent by mail, so patient must fill in correct address)
- Patient must complete survey
- Please fax both consent form and survey to 973.322.6886 (For any questions, please call 973-322-6777)

Ordering physician: Dr. Su Wang (ph 973.322.6888 fax 973.322.6886) Plan Code: G32 (no insurance info needed)
3 Lab Tests: Hepatitis B Surface Ag & Hep B Surface Ab & Hep B Core Ab (total or IgG)
Thank you!

**BLOG CARNIVALS  HEALTHCARE**

Sometimes a Mom's best gift is what she doesn't pass on.

May 11, 2014

By Su Wang, MD MPH

As I celebrate Mother's Day, I think of all the great things my mother passed on to me—life lessons, acts of love and sacrifice, and words of encouragement and wisdom. But there's something else she passed on to me, which I know she wishes she could take back.

Without knowing, my mother passed on the hepatitis B virus to me during childbirth. My grandmother also passed it on to her when there was no knowledge hepatitis B even existed. When I was born in the 1970s, the virus had only been discovered a few years before.

When people ask me why their child needs a vaccine for hepatitis B, especially if the mother doesn't have hepatitis B, I ask them to consider a few things. Hepatitis B is a common infection (1 in 12 worldwide have it), and you can't guarantee that your child won't ever be exposed to it. It's primarily transmitted through contact with blood, and the virus can live on surfaces for up to seven days. Needle stick injuries, open cuts/wounds, bites, and sexual intercourse are all ways that someone could get the virus. On the flip side, casual contact, coughing/sneezing, breastfeeding, and sharing food are not ways the virus is transmitted.

If they are exposed, infants and children are more likely to develop a lifelong hepatitis B infection because their immune systems are not fully developed. If you could protect your child from a lifelong infection that could lead to cirrhosis and liver cancer, wouldn't you? Take it from someone who has hepatitis B—don't deprive or delay your kids from getting this life-saving vaccine.

I know my mother wishes the hepatitis B vaccines had been developed when I was born and that she didn't pass on the infection to me. But because more is known about this disease today, and because the vaccines are now available, the hepatitis B legacy stopped with me. It's also a relief to know that my mother is one of the few who has naturally resolved her infection and is now free of hepatitis B.

I have three children now, each of whom received this life-changing intervention at birth, and as a result, all of them are free of hepatitis B. They will never have to live with this potentially lifelong infection. As a mother, not passing on the hepatitis B infection is really one of the best gifts I could have given them, and one of the most important lessons my mother helped to teach me.