

Give birth to the end of Hep B

Prevention of Perinatal Hepatitis B Transmission — Opportunity for Improvement in OC

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Background on hepatitis B

- Hepatitis B is a contagious liver disease caused by the hepatitis B virus (HBV).
- HBV is found in the blood and other body fluids of infected people (e.g., serum, semen, saliva, vaginal secretions, and amniotic fluids).
- An infant can acquire HBV from:
 - An infected mother (transmitted in utero* or at birth)
 - A chronically infected member of the household

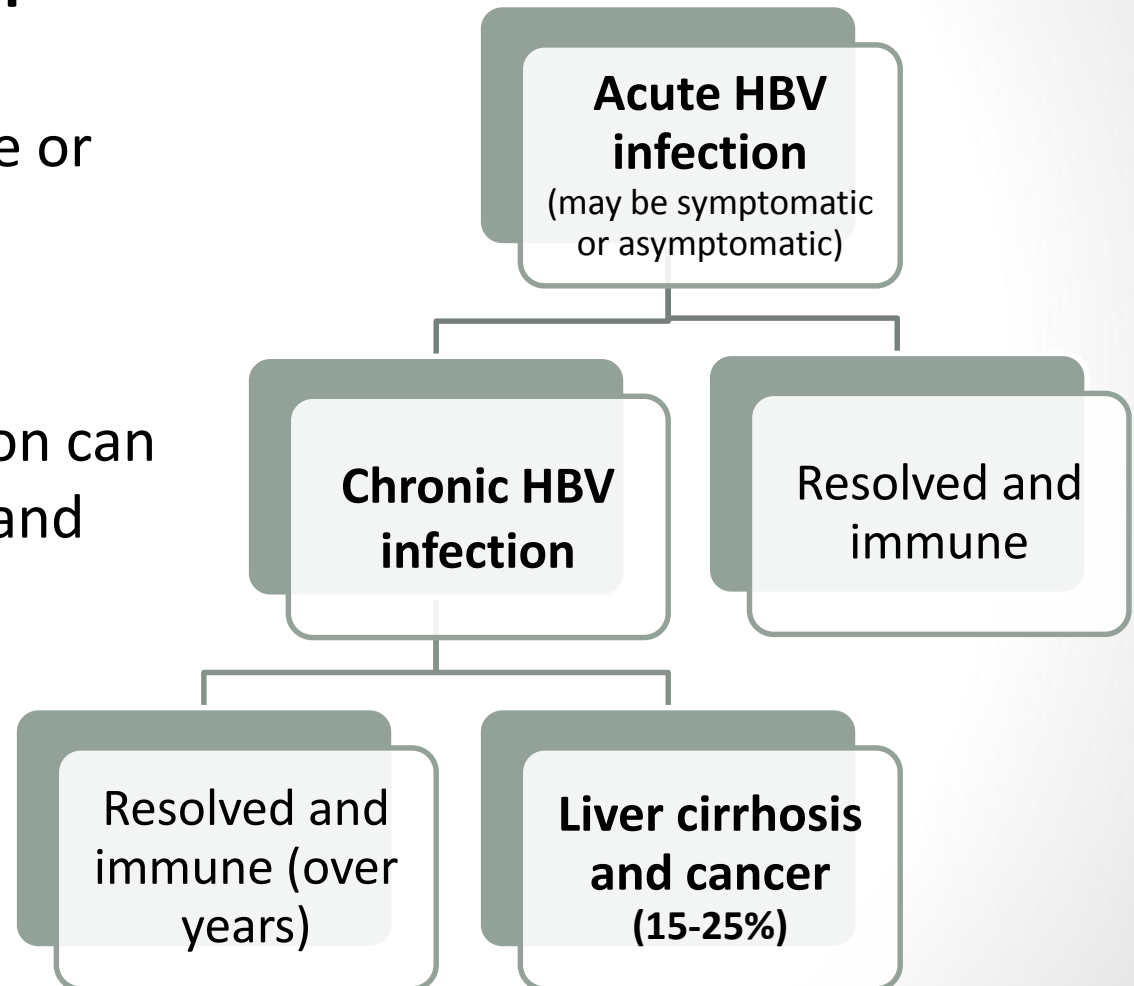


*small percentage (<2%)

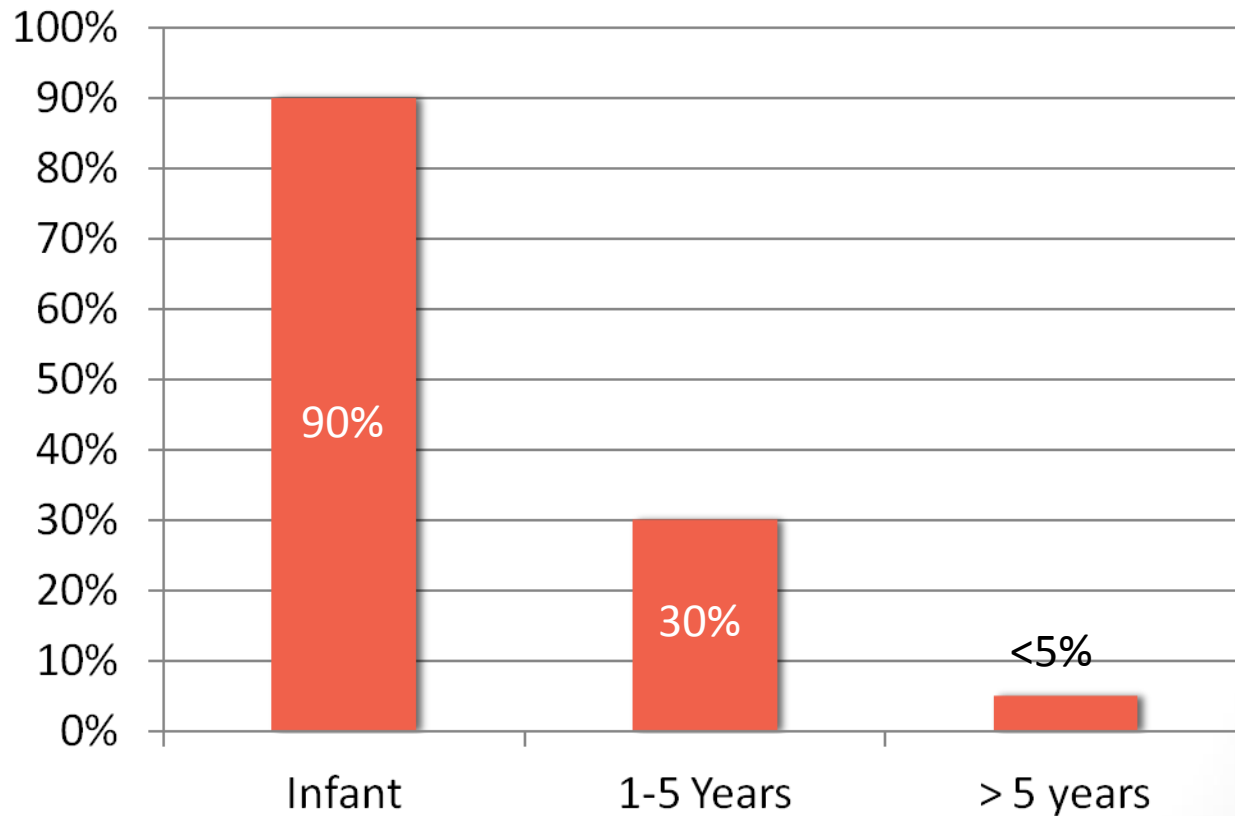
Natural history of hepatitis B virus (HBV) infection

HBV can cause acute or chronic infection.

Chronic HBV infection can lead to liver failure and liver cancer.



Risk of developing chronic hepatitis B by age at infection



Why a birth dose?

- The primary goal of administering hepatitis B vaccine at birth is to protect babies from chronic HBV infection.
 - Most morbidity and mortality from HBV-related liver failure and liver cancer occurs in people with chronic HBV infection. Results in premature death in 25% of infected infants.
 - 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.



Safety of hepatitis B vaccine

- HBV vaccine is a recombinant vaccine produced in yeast cells. It does not contain hepatitis B virus.
- The two recombinant hepatitis B vaccines have been used in the U.S. since 1986 and 1989. Currently available combination vaccines: Pediarix (DTaP-IPV-hepatitis B) and Twinrix (hepatitis B and hepatitis A)*
- HBV vaccine has been shown to be very safe when given to infants and people of all ages.
- Majority of children who receive HBV vaccine have no side effects. The most commonly reported side effects are injection site soreness or slight fever. Serious reactions are rare.



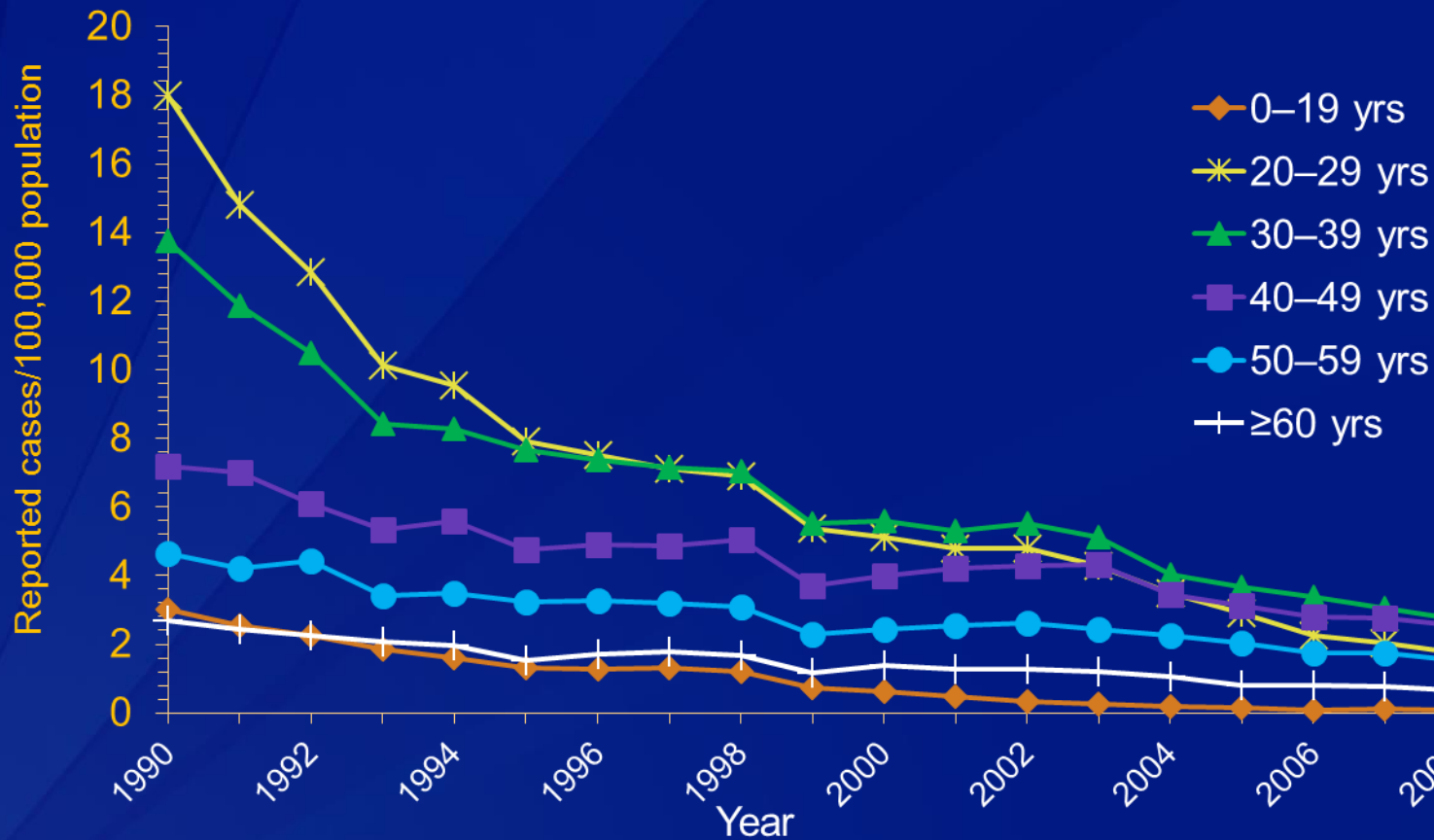
*Hib-Hep B (Comvax) discontinued in 2014

Power of Prevention

- Screening of all pregnant women for HBsAg to identify infants requiring postexposure prophylaxis has been recommended since 1988
- Universal childhood hepatitis B immunization recommended since 1991
- Estimated **25,000** infants born to HBsAg-positive women annually in the US
- Without postexposure prophylaxis, HBV would annually infect **12,000** infants in the US
- Without routine childhood HBV immunization, **16,000** children would be annually infected in the US



Figure 3.2. Incidence of acute hepatitis B, by age group — United States, 1990–2009



Source: National Notifiable Diseases Surveillance System (NNDSS)



Perinatal Hepatitis B Prevention Program Coordinator

The goal of the program is to prevent the perinatal transmission of hepatitis B by promoting the following:

- Prenatal testing of all pregnant women for hepatitis B infection and reporting cases to local health departments
- Appropriate immunoprophylaxis of infants born to hepatitis B surface antigen (HBsAg) positive women
- Post-vaccination serologic testing of exposed infants
- Screening and vaccination of close contacts
- These measures are backed by California State Law which requires prenatal screening for hepatitis B surface antigen and reporting of hepatitis B infection by health care providers and laboratories to local health departments.



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** (99% effective in recent US study).
 - Post-exposure prophylaxis: hepatitis B vaccine + hepatitis B immune globulin (HBIG) at birth, completion of hepatitis B vaccine series, and 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.



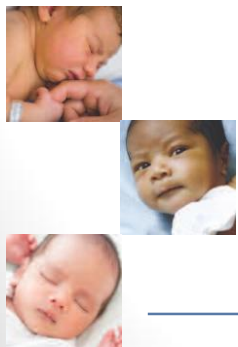
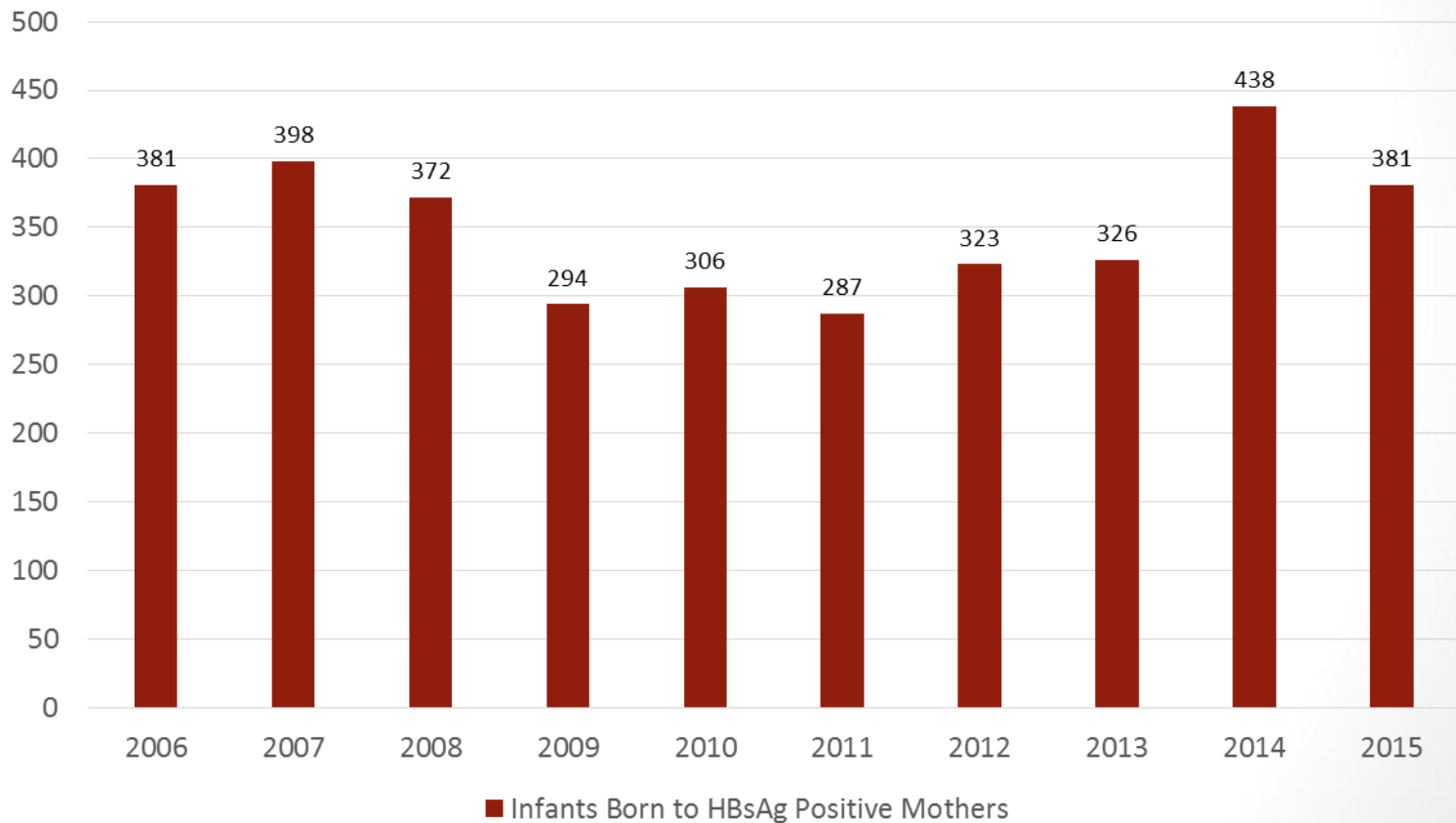
Postvaccination Serologic Testing (PVST) for infants born to HBsAg-positive Mothers

- **Vaccination Timing**
 - Newborn (<12 hours): HBIG + 1st dose HBV vaccine
 - 1 – 2 months: 2nd dose HBV vaccine (after 6 weeks if combination vaccine)
 - Age 6 months: 3rd dose (no earlier than age 24 weeks)
- **New 2015 CDC recommendation for timing of PVST**
 - 9 – 12 months of age, or
 - 1 – 2 months after final dose
- **PVST consists of two tests:**
 - HBsAg – negative
 - Anti – HBs levels \geq 10 mIU/mL



OC Statistics: Infants born to mothers who are HBsAg positive

Infants Born to HBsAg Positive 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.



Smith EA. Pediatrics 1012;129:609-616; MMWR 2005 ;57(RR-8):1-20

The Problem

- Many infants in the United States are not receiving the birth dose of hepatitis B vaccine.
 - Only 72% of U.S. infants received hepatitis B vaccine within 3 days of birth.*
 - States' coverage rates varied between 36% and 87%.*
- There is room for improvement in protecting newborn infants in every state.



***Reference:** Data from 2012 National Immunization Survey, at www.cdc.gov/vaccines/imz-managers/coverage/nis/child/tables/12/tab02_antigen_iap_2012.pdf

Birth Dose Coverage: National Quality Forum (NQF) Measure 0475

- *NQF measure 0475 endorsed on 4/2/2012*
- Recommends that hospitals measure and report the “percent of live newborn infants that receive hepatitis B vaccination before discharge at each single hospital / birthing facility during given time period (one year),” excluding infants whose parents refuse vaccination.

Annual number of infants administered hepatitis B vaccination ÷
(Annual live births – Annual number of vaccine refusals)

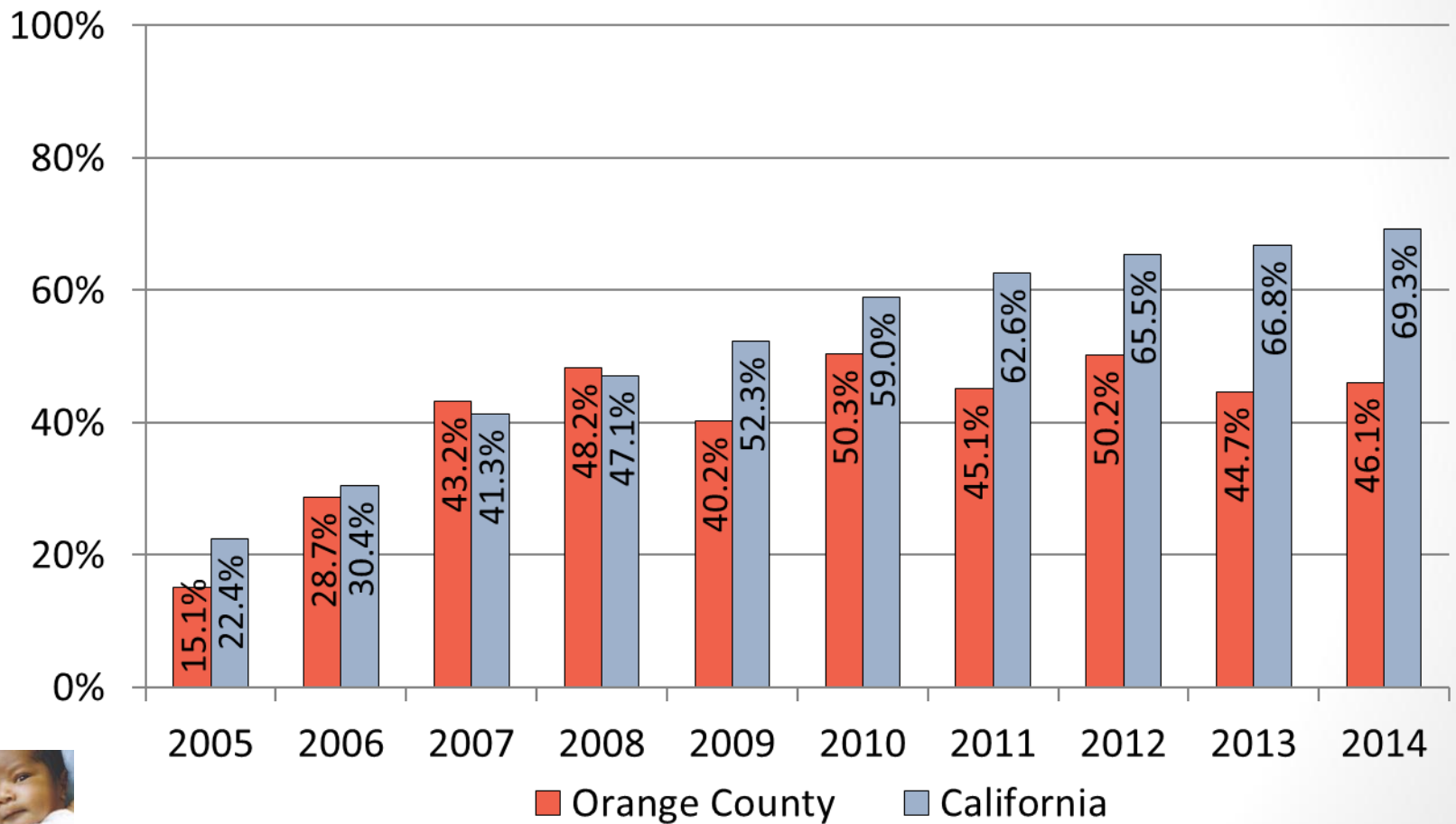


Data Limitations

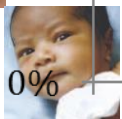
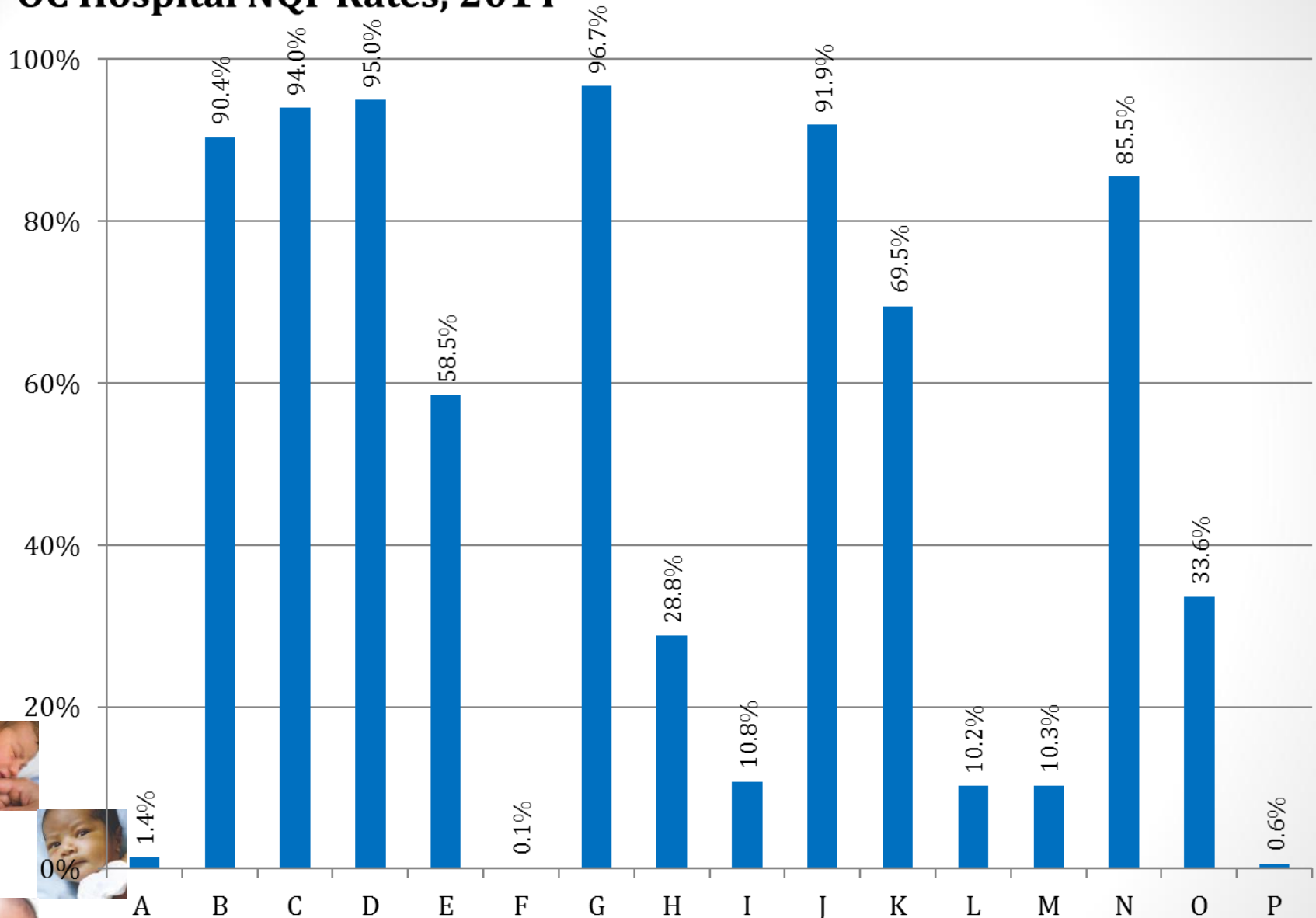
- CA State Immunization Branch requests data from the Office of Statewide Health Planning and Development (OSHPD)
- OSHPD pulls data from ICD-10 hospital discharge codes
- CPT Administration Codes are not available to OSHPD
- Incomplete discharge codes contribute to underreporting of HBV vaccination rates



OC Newborn HBV NQF Vaccinations Rates



OC Hospital NQF Rates, 2014



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



Why is a safety net needed?

Because medical errors happen!



Types of medical errors reported

- Ordering the wrong hepatitis B screening test
- Misinterpreting or mistranscribing the hepatitis B test results
- Failing to communicate the HBsAg test results to or within the hospital
- Not giving hepatitis B vaccine to infants born to mothers of unknown HBsAg status within 12 hours of birth
- Not giving prophylaxis to an infant even when the mother's HBsAg-positive status is documented



Because of these types of errors,
infants 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 $\geq 2,000$ 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

Reference: MMWR 2005;54(RR-16) www.cdc.gov/mmwr/PDF/rr/rr5416.pdf

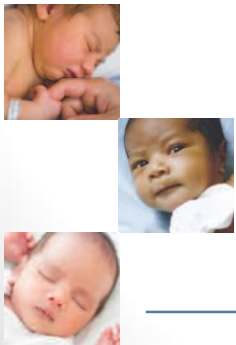


All birthing hospitals should also:

- 4. Document Test Results:** 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 $\geq 2,000$ 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.

Reference: MMWR 2005;54(RR-16) www.cdc.gov/mmwr/PDF/rr/rr5416.pdf



Hepatitis B birth dose is recommended by:

- Advisory Committee on Immunization Practices (ACIP)
- American Academy of Pediatrics (AAP)
- American Academy of Family Physicians (AAFP)
- American College of Obstetricians and Gynecologists (ACOG)

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

Reference: MMWR Supplement. February 1, 2013. Vol. 62.

Advisory Committee on Immunization Practices (ACIP) Recommended Immunization Schedules for Persons Aged 0 Through 18 Years and Adults Aged 19 Years and Older—United States, 2013.

www.cdc.gov/mmwr/pdf/other/su6201.pdf



Give birth to the end of Hep B

An IAC initiative to eliminate hepatitis B virus infection in the U.S. through the prevention of perinatal transmission



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



The screenshot shows the Immunization Action Coalition website with the following content:

- Navigation:** Home | About IAC | Contact | A-Z Index | Donate | Site | [SUBSCRIBE](#)
- Target Audience:** For Health Professionals | For the Public | For Clinicians
- Menu:** Handouts for Patients & Staff | Clinic Resources | Vaccine Information Statements | Diseases & Vaccines | Talking about Vaccines | Topics
- Page Title:** IAC Home | Protect Newborns - Hepatitis B Birth Dose Project
- Section:** Give birth to the end of Hep B
- Sub-section:** Protect newborns - Administer HepB vaccine at birth
- Text:** The Immunization Action Coalition (IAC) is urging hospitals and birthing centers to meet the national standard of care by providing a universal birth dose of HepB vaccine.
- Key Points:**
 - It prevents mother-to-infant transmission. Prevents 70%–95% of transmission to infants born to HBeAg-positive women.
 - It prevents household transmission. Protects infants from infected family members and other caregivers.
 - It provides protection if medical errors occur. Provides a safety net to prevent perinatal transmission when medical errors occur.
- Take initiative...**
 - BIRTH DOSE HONOR ROLL:** Hepatitis B Birth Dose Honor Roll. Recognizing hospitals and birthing centers that have attained high coverage rates for administering hepatitis B vaccine at birth. [learn more](#)
 - WATCH ARCHIVED WEBINAR:** New initiative to Give birth to the end of Hep B. Featuring CDC, IAC, and NYS. [webinar](#) | [slide set](#) | [transcript](#)
 - HepB Birth Dose Questions?** Contact: Perinatal HepB Coordinators. Email: birthdose@immunize.org
- Birth Dose Press Release:** Insert text here.
- Endorsed by:** AAP, AAP, ACOG, CDC
- HEPATITIS B: What hospitals need to do to protect newborns**
- IAC'S COMPLETE GUIDE:** Hepatitis B: What Hospitals Need to Do to Protect Newborns. IAC's comprehensive guidebook is a complete resource to help hospitals and birthing centers establish, implement, and optimize their birth dose policies. [learn more](#)
- CAMPAIGN HANDOUT:** Give Birth to the End of Hep B. Use this background on the importance of implementing a HepB birth dose policy to garner support in your healthcare setting. [color version](#) [B&W version](#)

Parent Information Resources

Hepatitis B Shots Are Recommended for All New Babies. Hepatitis B Vaccine Helps Protect Your Baby's Future!

What is hepatitis B and why do I need to protect my baby now?

Hepatitis B is a serious disease caused by the hepatitis B virus. The virus can enter the bloodstream, attack the liver, and cause serious damage. When babies get infected, the virus usually remains in the body for a lifetime (this is called chronic hepatitis B). About 1 out of 4 infected babies will die of liver failure or liver cancer as adults. Hepatitis B is a deadly disease – but it's preventable with vaccination.

How is hepatitis B virus spread?

Anyone can become infected with hepatitis B virus at anytime during their lives. Hepatitis B virus is spread by contact with an infected person's blood or certain body fluids. For example, babies can get hepatitis B virus from their infected mothers at birth, and children can get it if they live with or are cared for by an infected person, or even if they share personal care items (e.g., toothbrush) with an infected person.

Currently, about 1 out of 20 people in the United States have been infected with the hepatitis B virus.

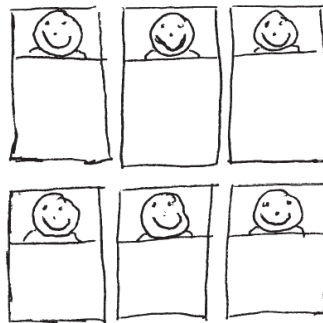
How many people have hepatitis B?

In the United States, tens of thousands of people get infected with the hepatitis B virus each year. About one million people in the U.S. are already infected. Every year, about 3,000 Americans die from liver failure or liver cancer caused by hepatitis B. Worldwide, 350 million people are infected.

It is impossible to know if a person is infected with the hepatitis B virus by looking at them. Most people have no symptoms, do not feel sick, and don't know they are infected. As a result, they can spread the virus to others without knowing it. The only way to know if a person is infected is with a blood test.

Is there a cure for hepatitis B?

No. Although there are several medicines to help people



Who recommends that all babies get hepatitis B vaccination at birth?

Medical groups such as the American Academy of Pediatrics, the American Academy of Family Physicians, the American College of Obstetricians and Gynecologists, and the Centers for Disease Control and Prevention recommend that every baby get hepatitis B vaccine at birth, before leaving the hospital. These are the same groups that recommend babies get vaccinated against whooping cough (pertussis), measles, tetanus, polio, and other serious diseases.

Why does my baby need a hepatitis B shot at birth?

It is important to vaccinate babies at birth so they will be protected as early as possible from any exposure to the hepatitis B virus. Babies and young children are not able to fight off hepatitis B virus infection as well as older people. A baby who gets infected with the hepatitis B virus during the first five years of life has a 15% to 25% risk for pre-

Protect Your Baby for Life

Hepatitis B and Your Baby



Why should pregnant women be concerned about Hepatitis B?

Hepatitis B is a contagious liver disease that can be easily passed from a pregnant woman to her baby at birth. Fortunately, there is a vaccine to prevent babies from getting Hepatitis B.

How is Hepatitis B spread?

Hepatitis B is spread when blood, semen, or other body fluids from a person with the Hepatitis B virus enter the body of someone who is not infected. The virus is very infectious and is easily spread to others. This can happen through:

- An infected mother passing it to her baby at birth
- Sex with an infected person

What is Hepatitis B?

"Hepatitis" means inflammation of the liver. Hepatitis B is a liver disease that results from infection with the Hepatitis B virus. Some people are able to fight the infection and clear the Hepatitis B virus. For others, the virus remains in their body and becomes a chronic, or lifelong, illness. Over time, Hepatitis B can cause serious health problems.

How serious is Hepatitis B?

As many as 1 in 4 people with Hepatitis B develop serious liver problems including liver damage, liver failure, and even liver cancer. Every year, approximately 3,000 people in the United States die from Hepatitis B-related liver disease.

Prevent Hepatitis B.
Get your baby vaccinated.

How common is Hepatitis B?

It is estimated that 350 million people worldwide and 1.2 million people in the United States are infected with Hepatitis B. For every 1,000 pregnant women that give birth each year, 1 to 2 of them have Hepatitis B.

Are babies at risk for Hepatitis B?

Yes. When a pregnant woman has Hepatitis B it can be spread easily to her baby. Babies and young children can also get Hepatitis B from close contact with family members or others who might be infected. Infants who become infected with Hepatitis B have a 90% chance of developing a lifelong, chronic infection.

Are pregnant women tested for Hepatitis B?

Yes. Many women do not know they are infected, since people with Hepatitis B often have no symptoms. As a result, all pregnant women are given a blood test for Hepatitis B as part of their prenatal care. The test is usually performed during the first prenatal visit. If a woman has not received prenatal care, then she will be tested at the hospital before she delivers her baby.

Why are women tested for Hepatitis B?

Pregnant women are routinely tested for Hepatitis B, along with other diseases. These tests are done to find



<http://www.immunize.org/catg.d/p4110.pdf>

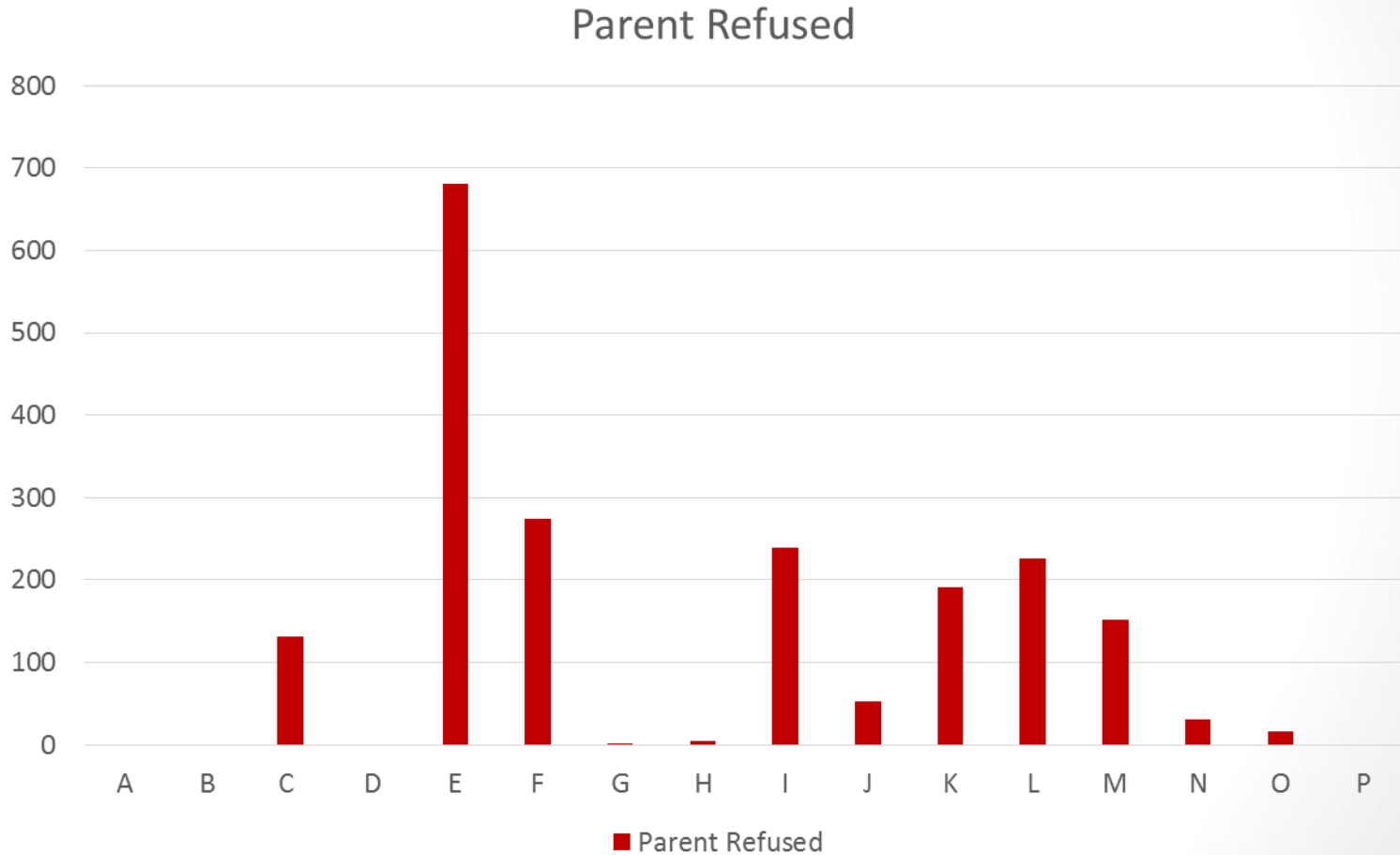
<http://www.cdc.gov/hepatitis/HBV/PDFs/HepBPerinatal-ProtectHepBYourBaby.pdf>

Newborn Hepatitis B Vaccination:

What Factors Contribute to Not Vaccinating at Birth?



OC Birthing Hospitals Reporting Parent Vaccine Refusal



Common Parental Reasons for Vaccine Delay/Refusal

- Not needed
- Safety/Side Effects
- Too many, too soon
- Distrust
- Pain and discomfort due to vaccines



Vaccine Refusal, Mandatory Immunization, and the Risks of Vaccine-Preventable Diseases,
Omer, et al, N Engl J Med 2009;360:1981-8.

Key Influences for Parental Vaccine Decisions

- Health Care Providers
- Family and friends
- Government vaccine experts/officials
- Internet
- Media—print, TV, social media
- Celebrities
- Parents who believe that their child was harmed by a vaccine



Sources and Perceived Credibility of Vaccine-Safety Information for Parents, GL Freed, et al, [Pediatrics](#), Vol. 127 No. Supplement 1 May 1, 2011, pp. S107 - S112.

What are OC Birthing Hospitals Practices on Newborn HBV Vaccination?

- Survey of nursing leadership currently being conducted to determine:
 - **Practice:** Is hepatitis B vaccination routinely offered?
 - **Barriers:** What are reasons for not giving the vaccine?
 - Physician preference
 - Patient refusal
 - Lack of vaccine availability
 - Hospital limitations
 - Other
 - **Data Quality:** What is the estimated percentage of newborns that receive hepatitis B vaccine before discharge?



The Orange County Immunization Coalition Advisory Committee has identified Newborn Hepatitis B Vaccination as a priority action area for 2016.



Acknowledgments/Sources

Slides and content adapted from:

Trudy V. Murphy, MD, Team Lead, Vaccine Research and Policy, Division of Viral Hepatitis, National Center for HIV, Viral Hepatitis, STD, and TB Prevention, Centers for Disease Control and Prevention

2015 AAP Red Book Report of the Committee on Infectious Diseases

MMWR

Immunization Action Coalition

Jasjit Singh, MD, CHOC Infectious Disease

