

# The Epidemiology and Prevention of Perinatal Hepatitis B in the United States

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The findings and conclusions in this presentation are those of the author and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

# Outline

- ❑ **Discuss the burden of perinatal Hepatitis B infection**
- ❑ **Review recommendations for preventing perinatal Hepatitis B**
- ❑ **Provide brief overview of the U.S. Perinatal Hepatitis B Prevention Program**

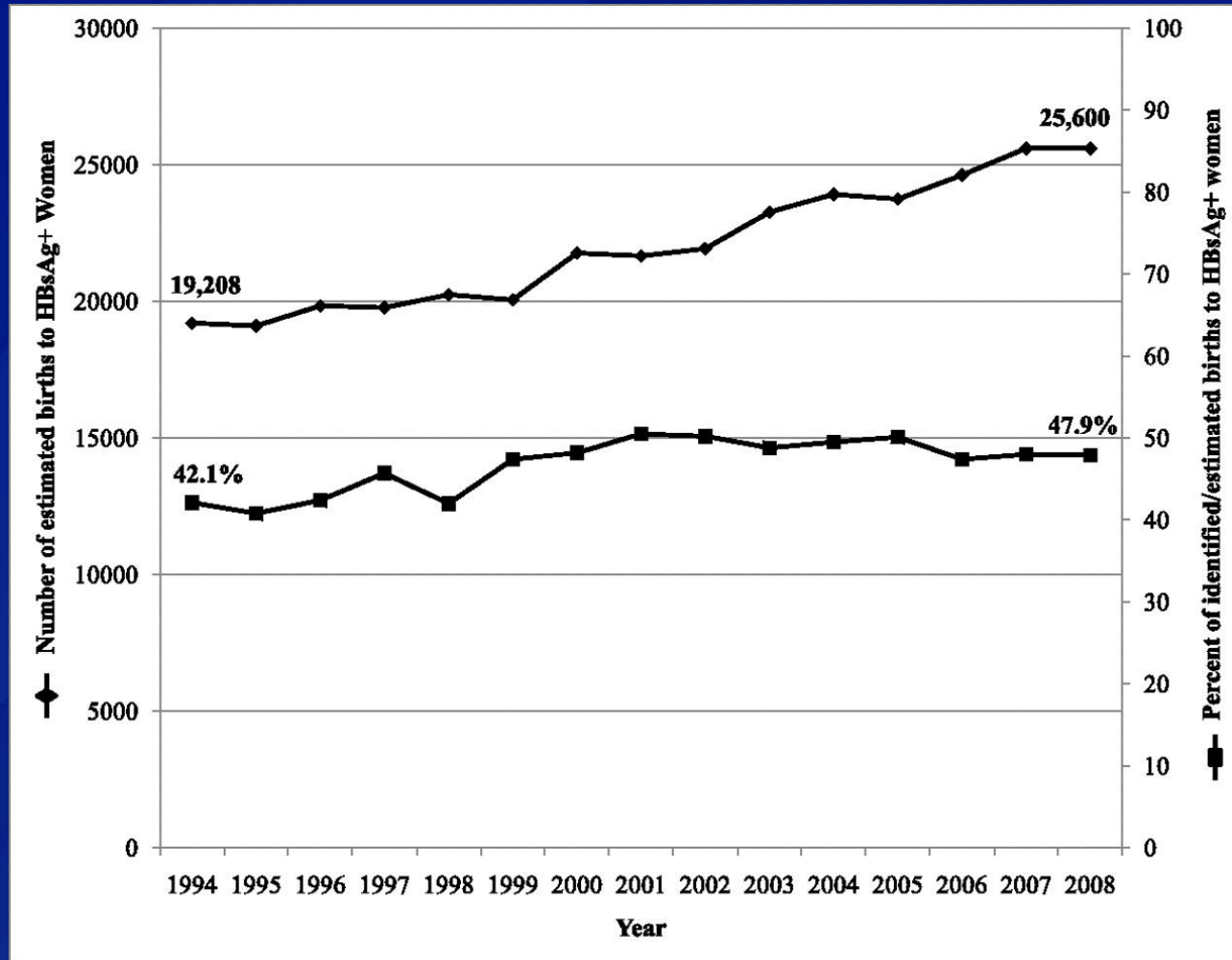
# Hepatitis B Infection among Infants

- **Primary source of infection: Mother-to-child transmission (perinatal), from mucosal exposure to infected blood and other body fluids**
  - An infant can also acquire Hepatitis B from an infected household member

# Chronic Hepatitis B

- ❑ **Chronic infection develops in**
  - 90% of infected infants
  - 30% of infected children aged <5 years
  - <5% of infected persons aged ≥5 years
- ❑ **Persons with chronic Hepatitis B have a 25% risk of premature death from cirrhosis/liver cancer**

# Estimated and Identified Births to Hepatitis B-Infected Women – United States, 1994-2008




# Risk for Perinatal Infection

- ❑ **Without prophylaxis (Hepatitis B Vaccine and Hepatitis B immune globulin), perinatal Hepatitis B infection occurs in up to 90% of infants born to infected women**
  - Prophylaxis is 95% effective in preventing perinatal Hepatitis B transmission

# Advisory Committee on Immunization Practices (ACIP) Recommendations

Please note: An erratum has been published for this issue. To view the erratum, please click [here](#) and [here](#).



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# MMWR™

Morbidity and Mortality Weekly Report


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Recommendations and Reports      December 23, 2005 / Vol. 54 / No. RR-16

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## A Comprehensive Immunization Strategy to Eliminate Transmission of Hepatitis B Virus Infection in the United States

Recommendations of the Advisory Committee  
on Immunization Practices (ACIP)  
Part 1: Immunization of Infants, Children, and Adolescents



**INSIDE: Continuing Education Examination**

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DEPARTMENT OF HEALTH AND HUMAN SERVICES  
CENTERS FOR DISEASE CONTROL AND PREVENTION

Mast et al. MMWR 2005

# ACIP Recommendations: Maternal Testing

- ❑ **To identify Hepatitis B infected mothers, all pregnant women should be tested routinely for Hepatitis B during an early prenatal visit**
  - Testing should occur in each pregnancy, even if the woman has been previously vaccinated or tested
- ❑ **Women should be re-tested at time of admission to hospital for delivery if risk factors present**

Mast et al. MMWR 2005



# ACIP Recommendations: Prophylaxis

## □ For infants born to:

- **Hepatitis B-infected mothers**

- Hepatitis B vaccine + hepatitis B immune globulin within 12 hours of birth

- **Uninfected\* mothers**

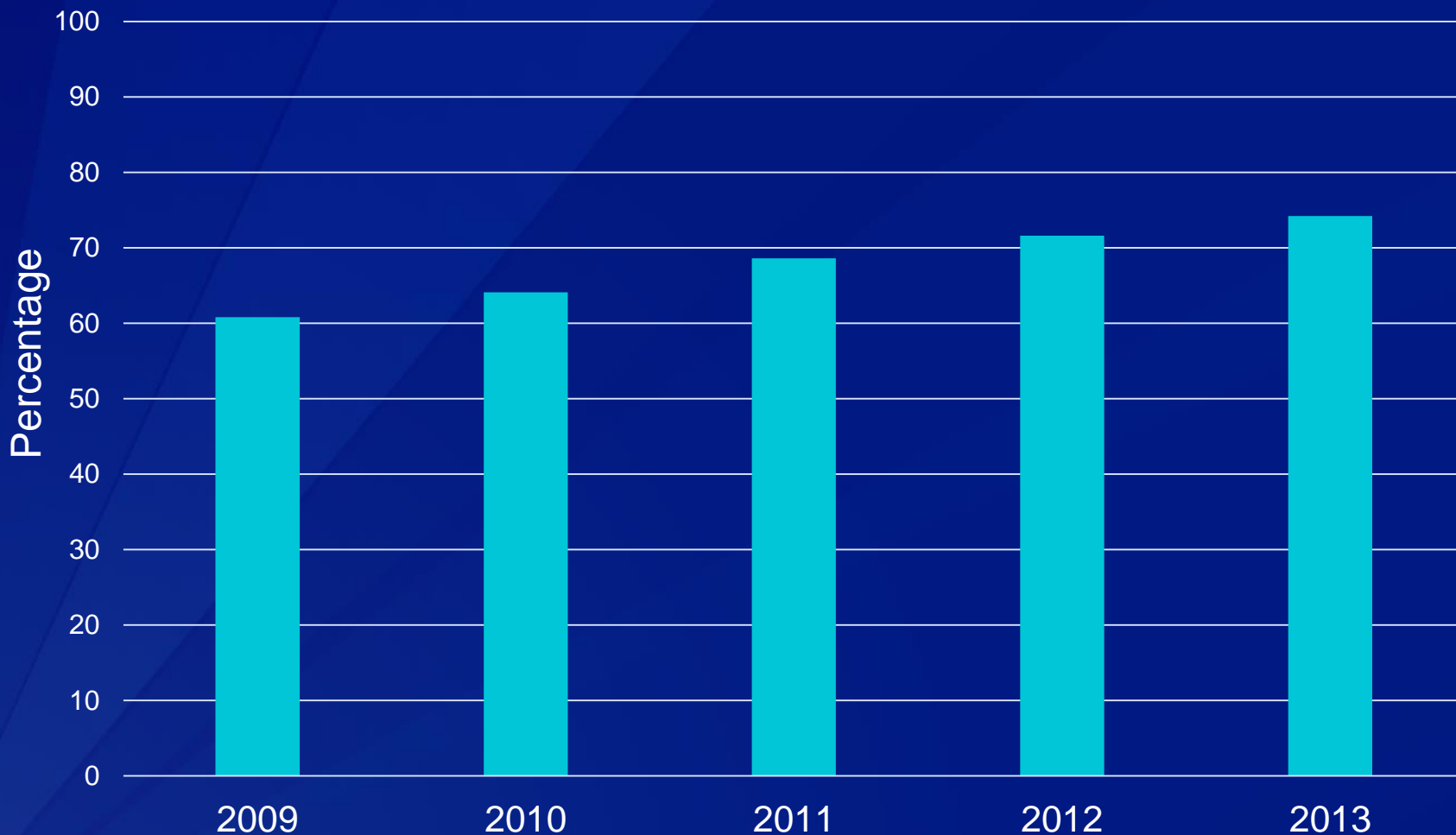
- Universal Hepatitis B vaccine “birth dose” (administered before hospital discharge)

\*Prophylaxis for infants born to mothers with unknown Hepatitis B status varies according to infant birth weight

# Universal “Birth Dose”

- ❑ Administering a “birth dose” to all infants serves as a *safety net* to prevent perinatal infection among infants born to hepatitis B-infected mothers who are not identified because of
  - Errors in maternal hepatitis B testing
  - Failures in reporting test results
- ❑ The “birth dose” also provides early protection to infants at risk for infection after the perinatal period (e.g., from household contacts)

# Hepatitis B Vaccine Birth Dose Coverage, National Immunization Survey – United States, 2009-2013



\*One dose by 3 days

# ACIP Recommendations: Completion of the Hepatitis B Vaccine Series

## □ Completion of the Hepatitis B vaccine series



- Series consists of 3 or 4 vaccine doses
- Completed at age 6-18 months

# ACIP Recommendations: Postvaccination Testing

- ❑ **Infants born to Hepatitis B-Infected mothers should undergo postvaccination testing after completion of the vaccine series, at age 9-18 months**
- ❑ **Postvaccination testing identifies**
  - Infected infants so that they can receive continuing care and treatment
  - Infants not responding to vaccination so they can receive revaccination

# Breakthrough Infections

- ❑ Despite prophylaxis, approximately 1% of infants born to infected women develop perinatal Hepatitis B infection
- ❑ Infants at greatest risk for breakthrough infections:
  - Born to younger mothers
  - Asian/Pacific Islander race
  - Maternal hepatitis B e antigen-positive
  - High maternal viral load
  - Fewer than 3 Hepatitis B Vaccine doses

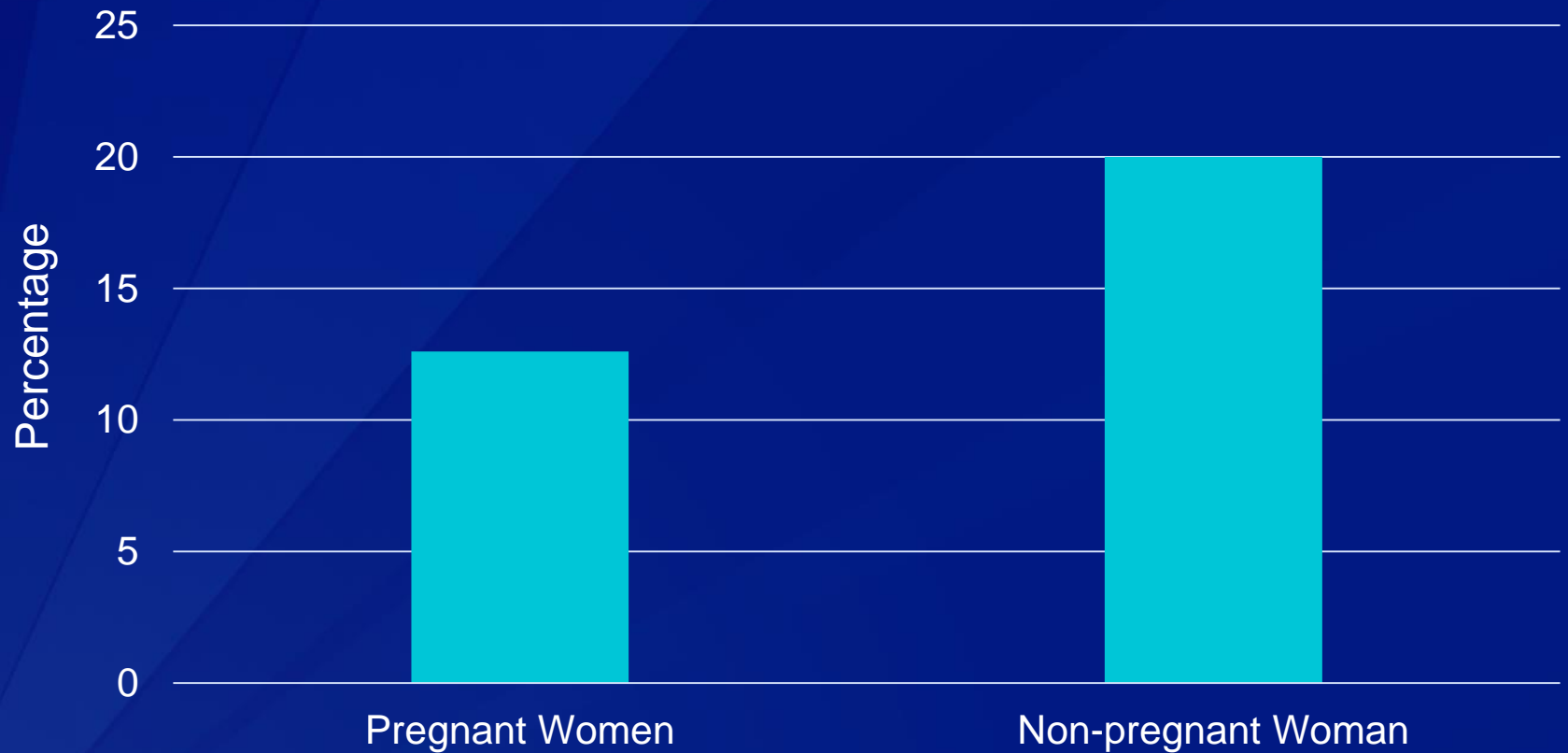
# Breakthrough Infections

- ❑ **Maternal antiviral therapy during pregnancy may prevent 70% of perinatal breakthrough infections**
  - Currently not the standard of care in the United States

Fan et al. *Obstet Gynecol* 2014

Fan et al. *Infect Dis Obstet Gynecol* 2014

# Proportion of Women with Hepatitis B Infection Receiving Antiviral Therapy by Pregnancy Status – United States, 2011





# U.S. Perinatal Hepatitis B Prevention Program (PHBPP)

- ❑ In 1990, CDC funded the PHBPP to accelerate progress toward elimination of perinatal Hepatitis B transmission
- ❑ PHBPPs aim to ensure:
  - Identification of all Hepatitis B-infected pregnant women
  - Timely receipt of infant prophylaxis
  - Infant postvaccination testing after completion of Hepatitis B vaccine series
  - Revaccination of infants with non-response to Hepatitis B vaccine

# U.S. Perinatal Hepatitis B Prevention Program, cont.

- ❑ **Prevention program funds are awarded to 64 immunization grantees**
  - 50 states
  - 6 cities
  - 8 territories and freely associated island nations
- ❑ **Funded by CDC's National Center for Immunization and Respiratory Diseases (NCIRD)**
  - Collaboratively with the National Center for HIV/AIDS, Viral Hepatitis, STD and TB Prevention (NCHHSTP)