The Epidemiology of Hepatitis B in West Virginia

West Virginia Public Health Symposium 2015

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Bureau for Public Health
Office of Epidemiology and Prevention Services
Division of Infectious Disease Epidemiology
Objectives

• Overview of the Hepatitis B Virus
• Hepatitis B in West Virginia
• Surveillance
• Public Health Action
• Local and State Response
Hepatitis B

Hepatitis B virus (HBV)
• Acute HBV
• Chronic HBV

Hepatitis B in the United States (U.S.)
• 46k new infections each year
• 1.4 million with chronic HBV

Hepatitis B Worldwide
• 350 million infected
• >500k die each year of HBV complications

Hepatitis B’s significance in West Virginia
• Highest rate of HBV in the U.S.
Acute Hepatitis B 2006 – 2014, West Virginia and The United States

The Drug Epidemic in West Virginia

Increased drug abuse
• Prescription pain killers
• Heroin

Lack of available rehabilitation facilities

Highest numbers of overdose deaths in the U.S.
• 34 deaths/100k people
• Twice the national average

Hepatitis B rates rising with increased drug abuse

www.healthyamericans.org

President of the United States, Barack Obama speaks about opioid addiction in West Virginia
Hepatitis B Signs and Symptoms

- Abdominal pain
- Dark urine
- Fever
- Nausea and vomiting
- Weakness and fatigue
- Loss of appetite
- Joint pain
- Yellowing of the skin and eyes (jaundice)
Risk Factors

- Unprotected sex
- Sharing needles (IDU)
- Men who have sex with men
- Live with a chronic HBV carrier
- Infant born to an infected mother
- A job that exposes you to human blood
- Traveling to regions with high infection rates
Hepatitis B Complications

• Scarring of the liver (cirrhosis)
• Liver cancer
• Liver failure
Infants of HBV positive mothers are at risk of being infected with HBV
• HBV vaccine
• HBV immune globulin (HBIG)

Infants born to HBV positive mothers
• 10% chance of becoming infected
• 90% chance of developing chronic HBV
Impact of Hepatitis B Vaccine on Hepatitis B Infection in the U.S.

- Blood derived vaccine
- First recombinant vaccine
- Universal vaccine of infants

<table>
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<th>Number of Cases</th>
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Contact tracing

- Partner notification to contacts exposed
- Hepatitis B testing and vaccine offered

**Hepatitis B Immune Globulin (HBIG)**

- Sexual partners and household contacts <14 days of positive HBV lab result
- Blood exposure <7 days of positive result
- <24 hours of birth for infants born to HBV infected mothers
Between 2008–2014: 23 outbreaks of hepatitis B linked to a healthcare procedure in the U.S.

Recognizing an outbreak:

• No risk factors other than a healthcare procedure
• Any **single** case of healthcare associated HBV is an **outbreak**

Surveillance

• Monitor disease patterns
• Predict, observe, and minimize the harm of outbreaks, epidemics, and pandemics
• Increase knowledge on who is affected and why to target intervention efforts
Surveillance Reporting Framework

Community

Physicians

Hospital Labs

Commercial Labs

Local Health Department

- Case Follow-up
- Local Surveillance

State Health Department

- Statewide Surveillance
- Weekly Surveillance Reports

CDC

- National Notifiable Disease Surveillance System (NNDSS)
- Morbidity and Mortality Weekly Report (MMWR)
Surveillance cont.

The reporting of notifiable infectious diseases is required by law in West Virginia

- Potential threat to the general population

**West Virginia Communicable Disease Rule (64CSR7)**

- Report hepatitis B **within 24 hours** to local health department in the county of the patients residence
Surveillance Case Definitions

Acute HBV

• Acute *confirmed* or Acute *not a case*

Chronic HBV

• Chronic *confirmed* or Chronic *probable*

**Council of State and Territorial Epidemiologist (CSTE)**

- HBsAg+
- IgM+
- Symptoms
- Jaundice or elevated LFTs
- Acute Confirmed Hepatitis B
Concentration of Acute Hepatitis B - West Virginia, 2014
Acute Hepatitis B by Age & Gender - West Virginia, 2014 (n=186)

Highest Rates of Acute HBV Infection

Rate per 100,000 Population

Age Group

Male
Female

*U.S. Census 2010 data used for incidence calculations: http://quickfacts.census.gov/qfd/states/54000.html
Acute Hepatitis B Risk Factors Reported - West Virginia, 2014

Percentage of Cases

Risk Factor

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>Percentage of Cases</th>
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<tbody>
<tr>
<td>Injection Drug Use</td>
<td>35</td>
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<tr>
<td>Used Street Drugs</td>
<td>30</td>
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<tr>
<td>Contact of a HBV Case</td>
<td>15</td>
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<tr>
<td>Incarcerated for more than 24 hours</td>
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<tr>
<td>Tattoo</td>
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<td>Treated for an STD</td>
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<td>Exposure to Someone's Blood</td>
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*Patient can report more than one risk factor*
Public Health Action Partners

Division of Infectious Disease Epidemiology (DIDE)
• Surveillance, WVEDSS, Healthcare associated HBV

Regional Epidemiologists
• Six regional epidemiologists

Local Health Departments
• Forty-nine health departments

West Virginia Division of Immunization Services (DIS)
• Perinatal Hepatitis B Program
• Hepatitis B Vaccine Project

West Virginia Health Statistics Center (WVHSC)
• Birth and death records

West Virginia Division of STD, Hepatitis & HIV (DSHH)
• Viral Hepatitis Prevention Coordinator
• Disease Intervention Specialists (DIS)
• Stacy Tressler, MPH, *Vaccine Preventable Disease Epidemiologist*
• Steve Blankenship, MS, *Data Analyst*
• Maria Del Rosario MD, MPH, *Director of Surveillance*
• Stephanie McLemore, RN, *Surveillance Nurse*
• Kimberly Moore, *Microcomputer Systems Support Specialist*
• Sandra Graham, RN, *Viral Hepatitis Prevention Coordinator*
• Beau Armstrong, *Programmer Analyst*
• Miguella Mark-Carew, PhD, *Zoonotic Disease Epidemiologist*
Contact

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