

# The Epidemiology of Hepatitis B in West Virginia

West Virginia Public Health Symposium 2015

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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.)

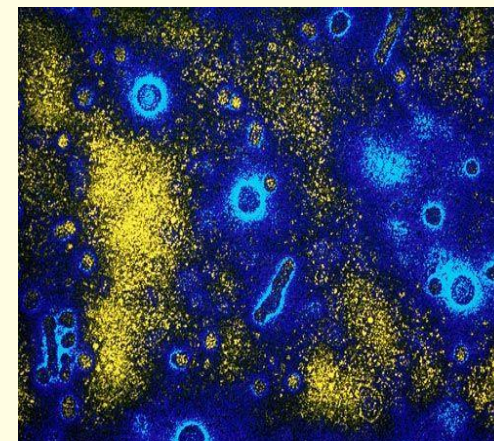
- 46k new infections each year
- 1.4 million with chronic HBV

## Hepatitis B Worldwide

- 350 million infected
- >500k die each year of HBV complications

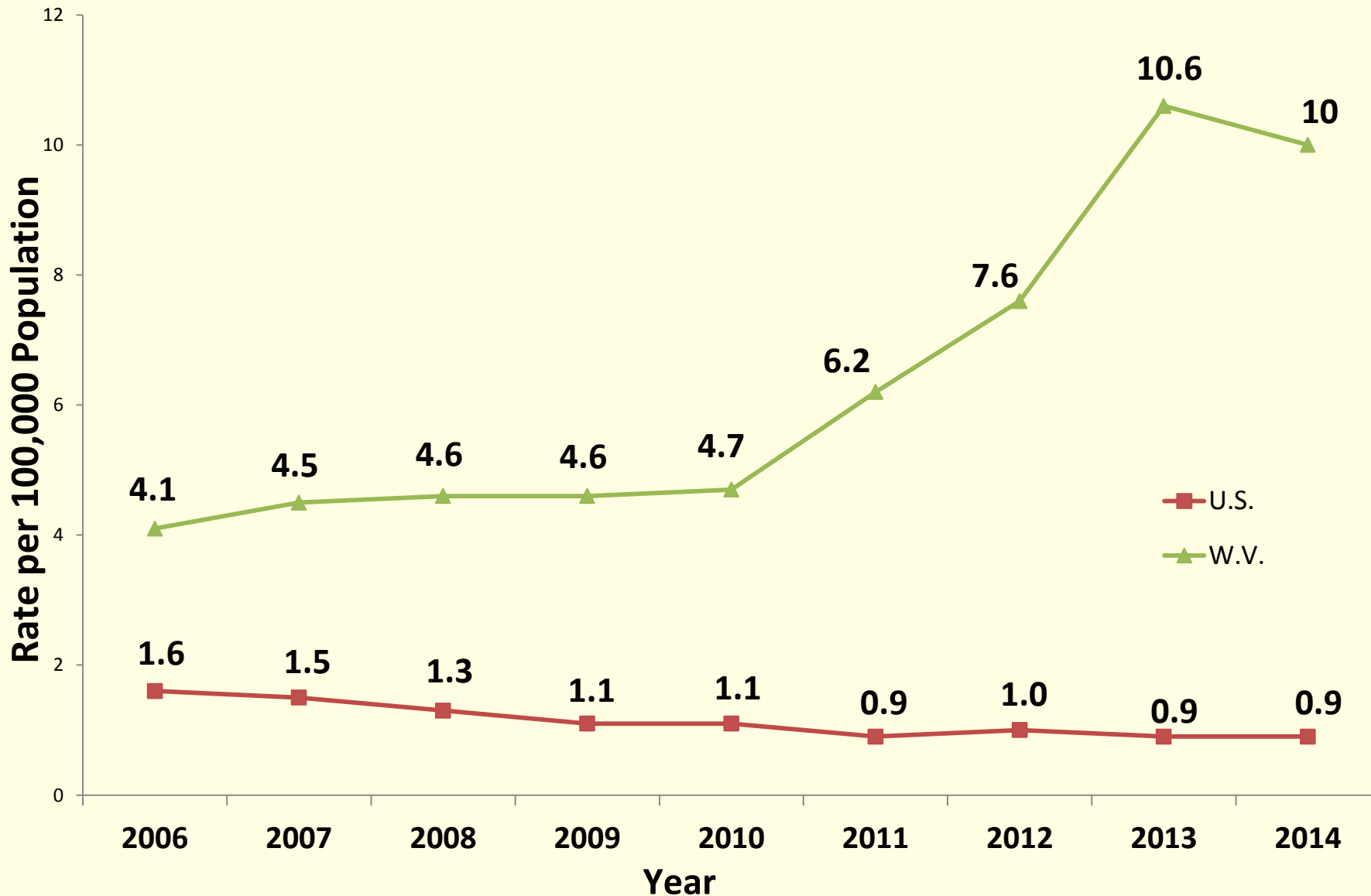
## Hepatitis B's significance in West Virginia

- Highest rate of HBV in the U.S.



HBV Under Electron  
Microscope

# Acute Hepatitis B 2006 – 2014, West Virginia and The United States



\*West Virginia rate & US rate 2006 - 2011 - source: <http://www.cdc.gov/hepatitis/Statistics/2011Surveillance/Table3/1/htm> 2014 CDC data is provisional.<sup>3</sup>

# 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

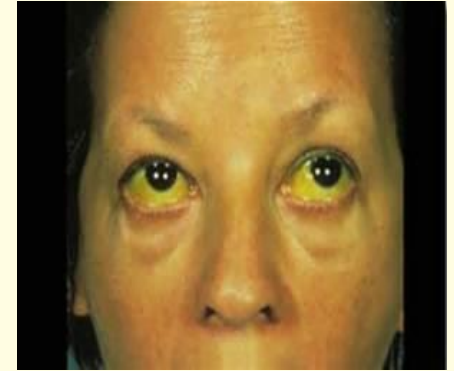


President of the United States, Barack Obama speaks about opioid addiction in West Virginia



# 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)



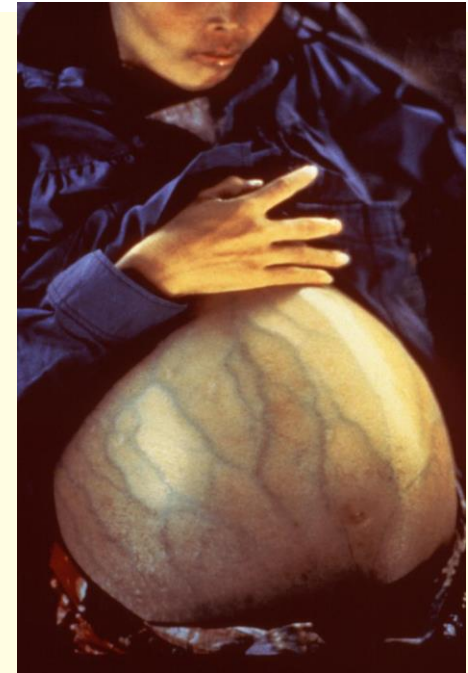
# Risk Factors

- 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

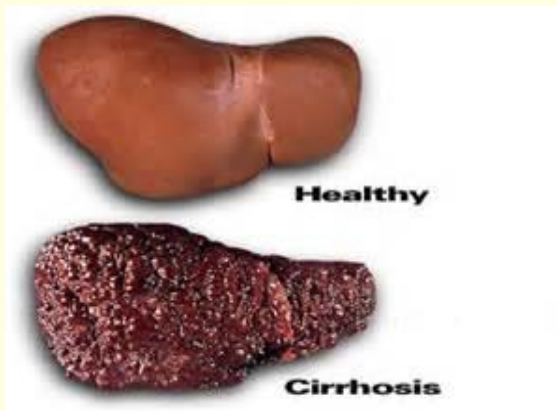


# Hepatitis B Complications

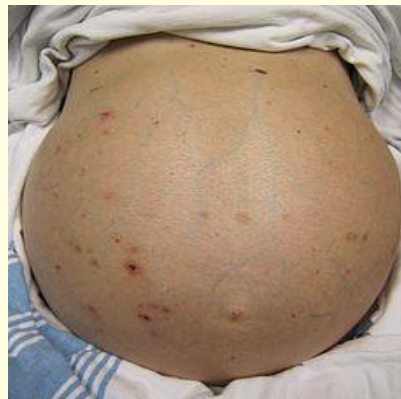
- Scarring of the liver (cirrhosis)
- Liver cancer
- Liver failure



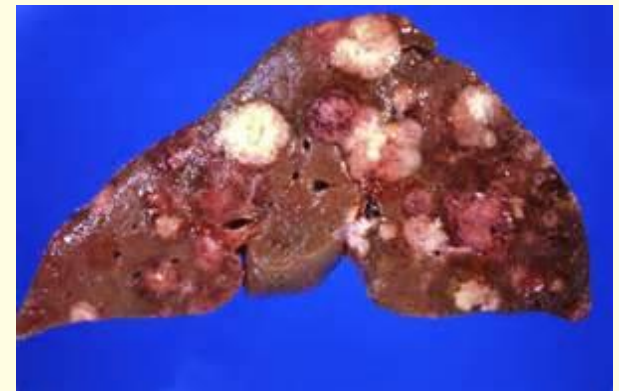
**Hepatoma**



**Cirrhosis**



**Liver failure**



**Liver Cancer**



# Perinatal Hepatitis B Complications

## **Infants of HBV positive mothers are at risk of being infected with HBV**

- HBV vaccine
- HBV immune globulin (HBIG)

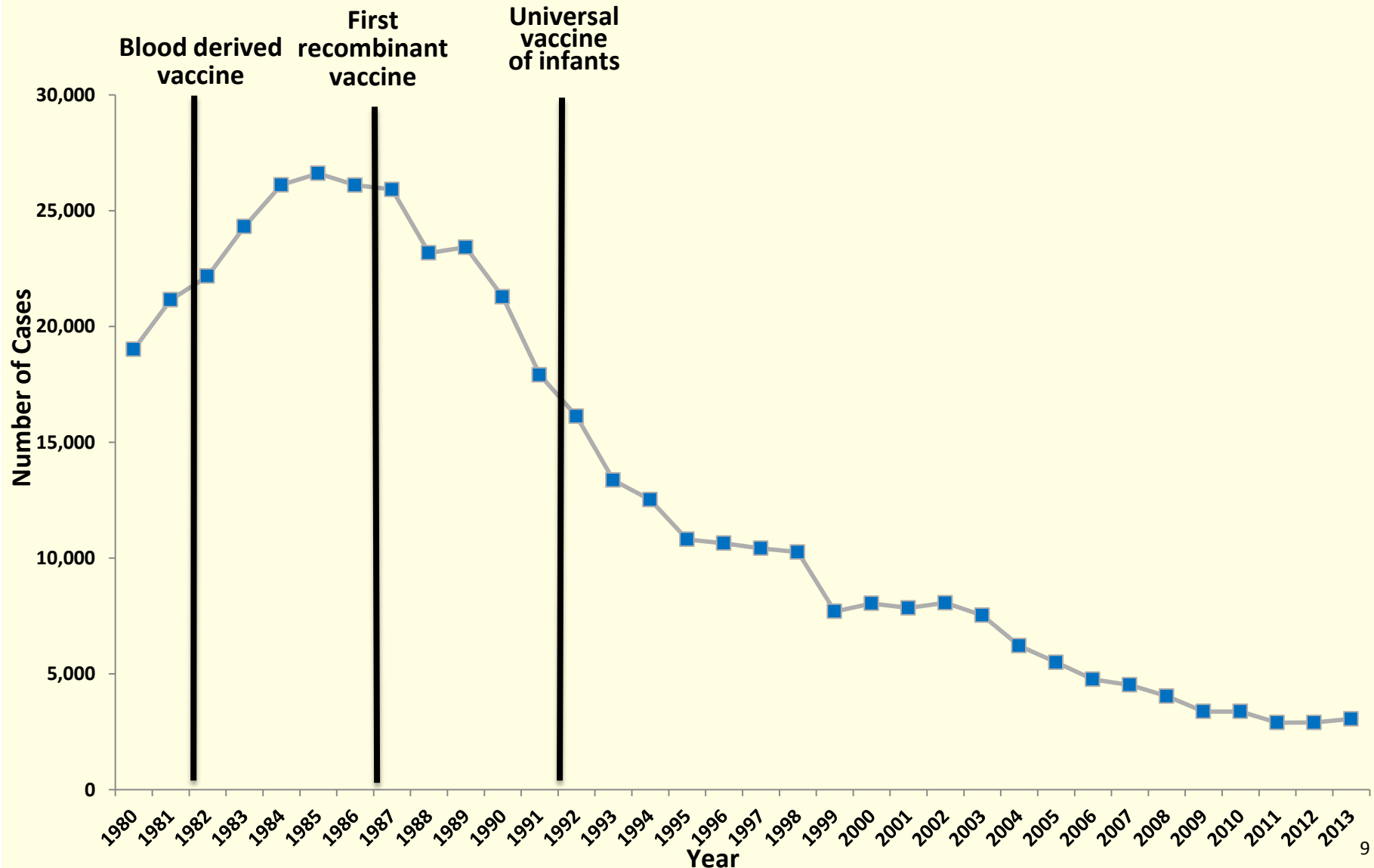
## **Infants born to HBV positive mothers**

- 10% chance of becoming infected
- 90% chance of developing chronic HBV



# Hepatitis B Vaccine

## Impact of Hepatitis B Vaccine on Hepatitis B Infection in the U.S.



## 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



# Healthcare Associated Hepatitis B



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

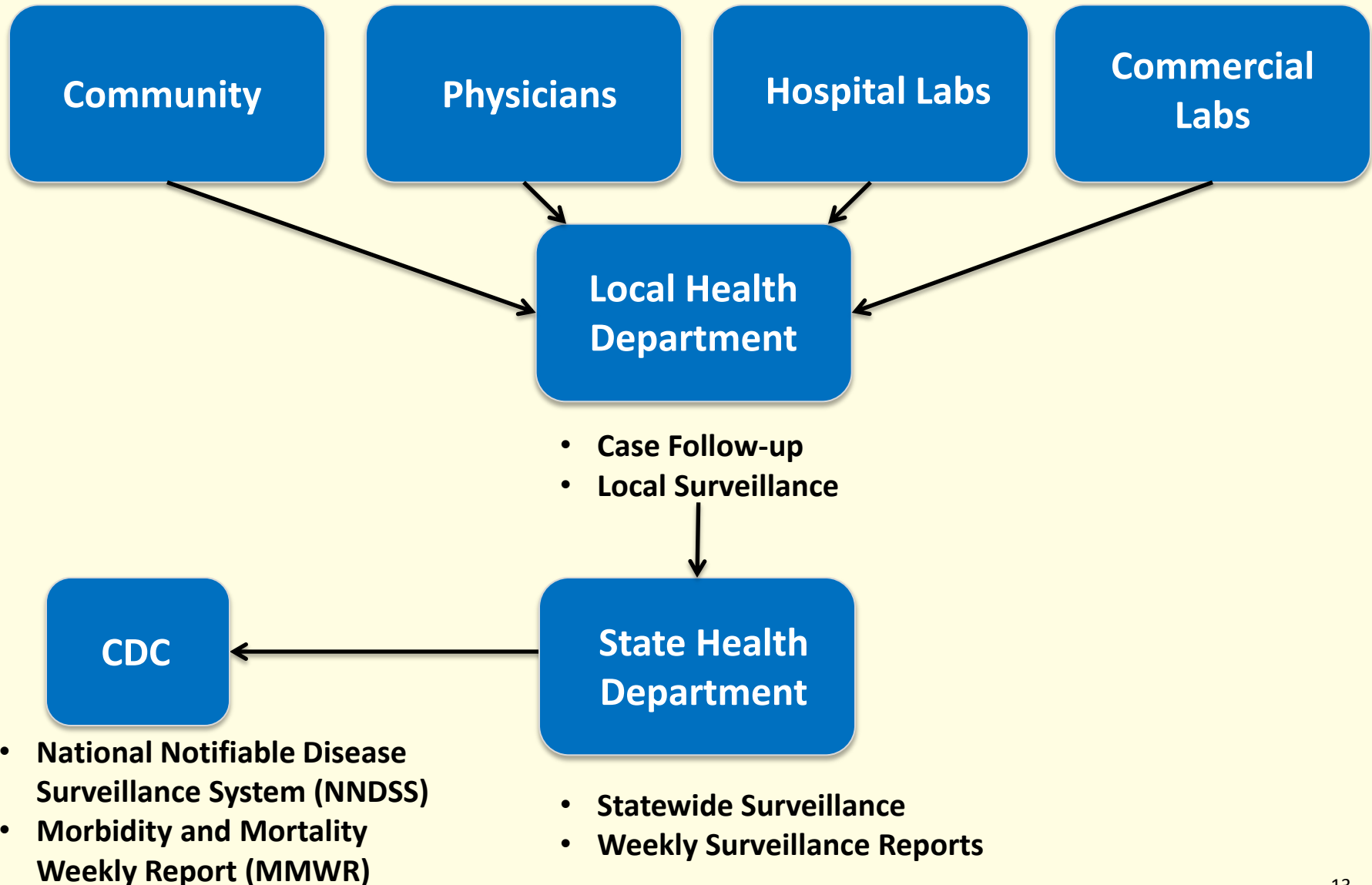
# Surveillance

- 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



**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

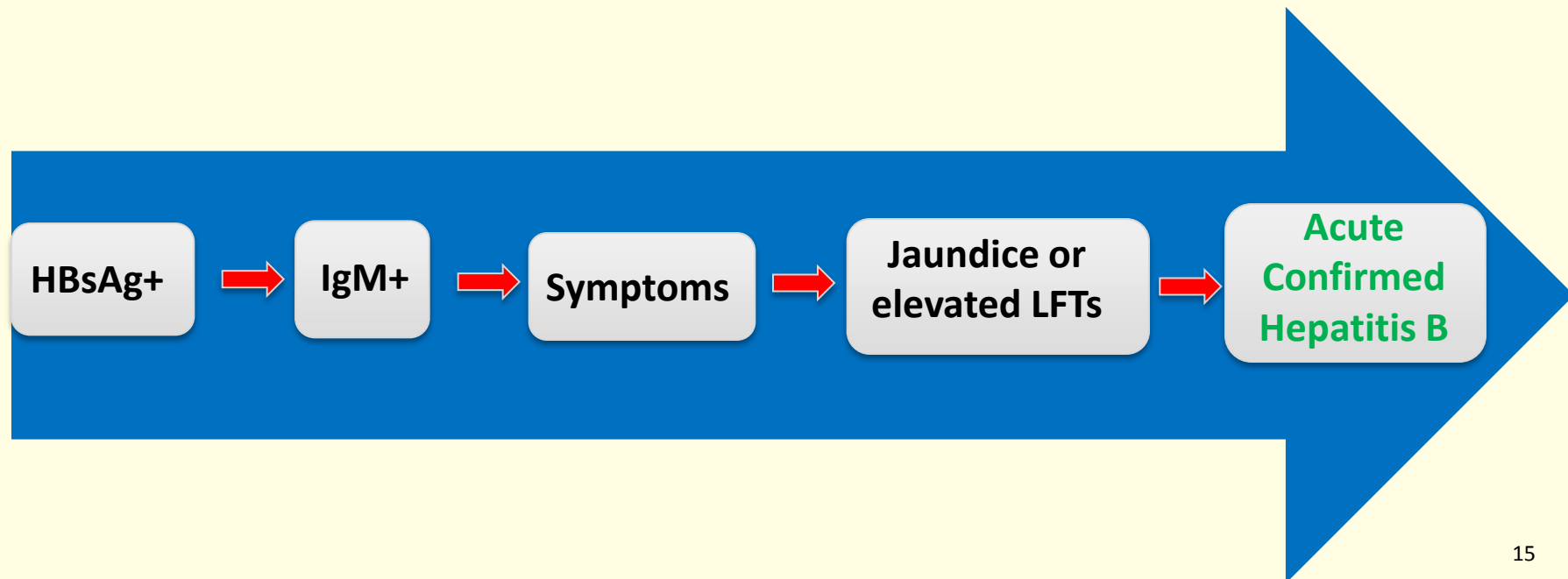
## Acute HBV

- Acute *confirmed* or Acute *not a case*

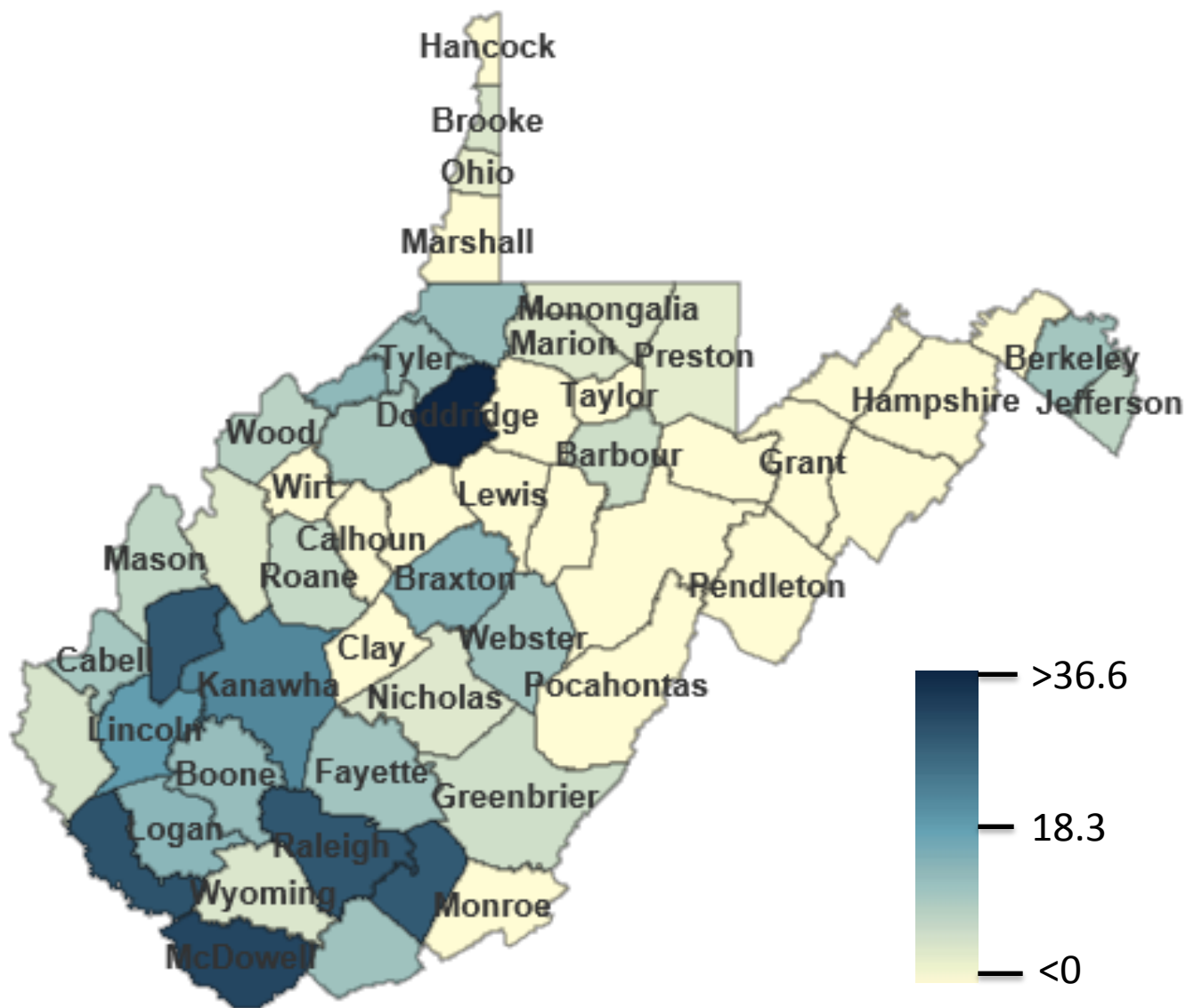
## Chronic HBV

- Chronic *confirmed* or Chronic *probable*

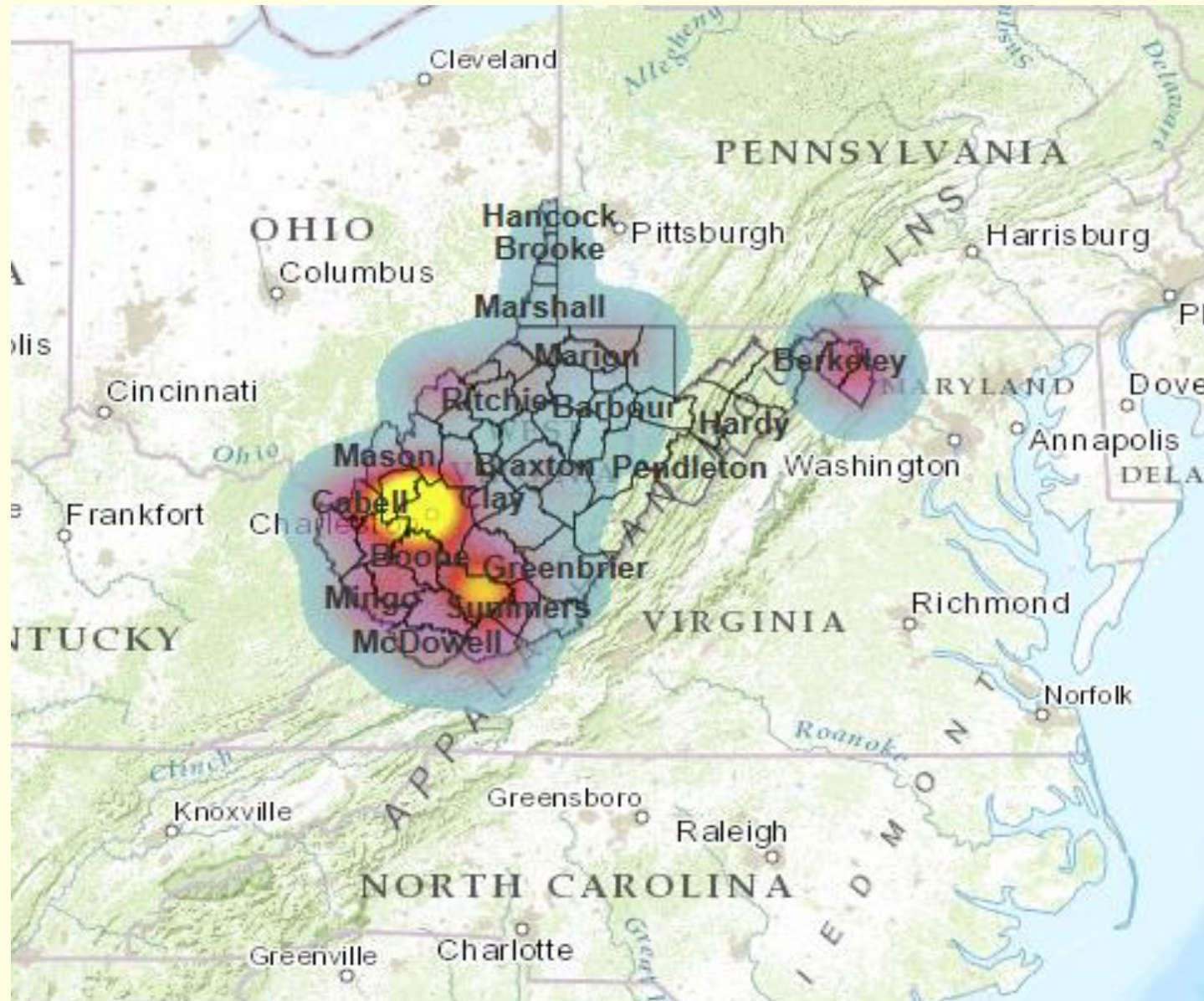
## Council of State and Territorial Epidemiologist (CSTE)



# Rate per 100,000 of Acute Hepatitis B - West Virginia, 2014

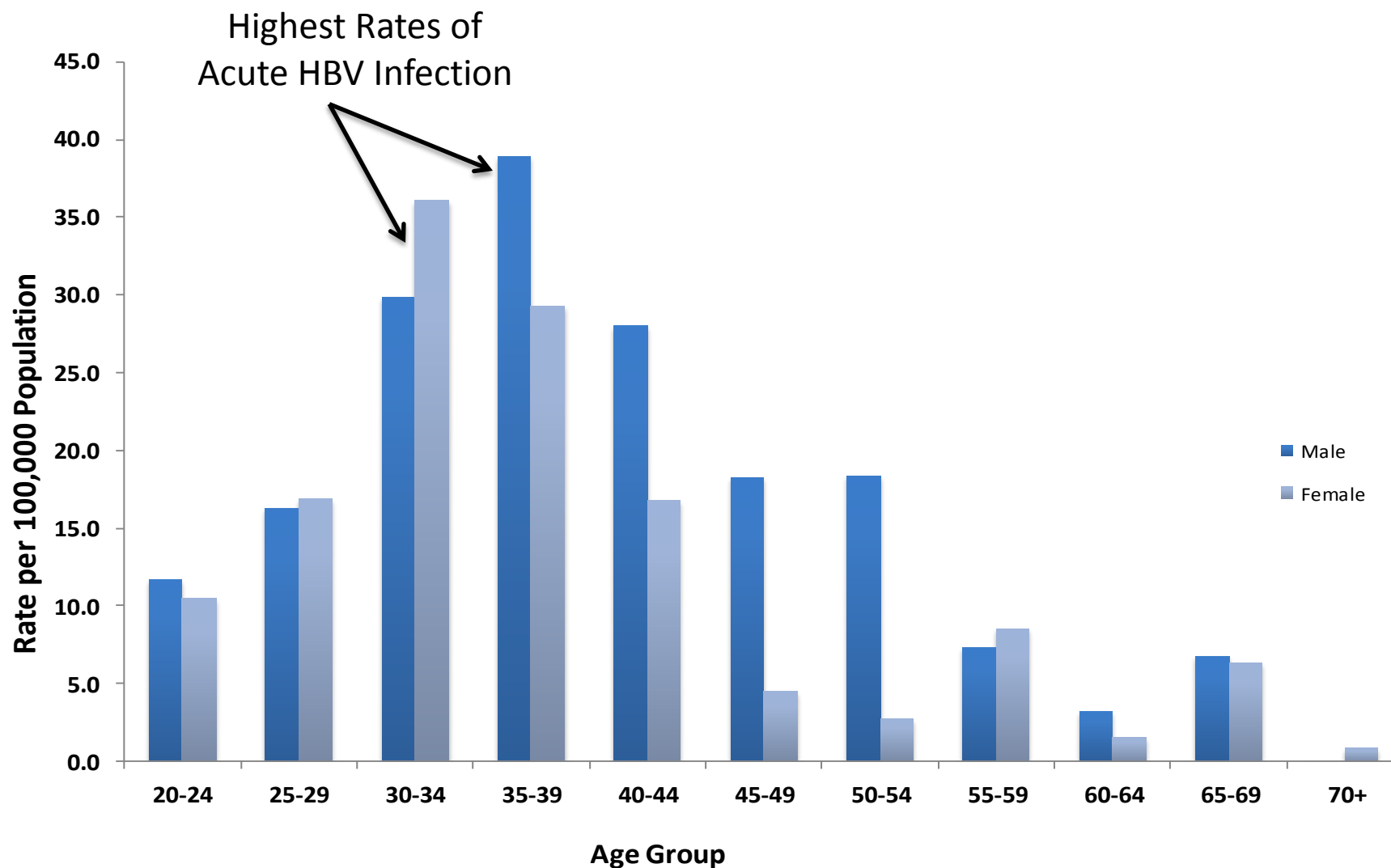


# Concentration of Acute Hepatitis B - West Virginia, 2014



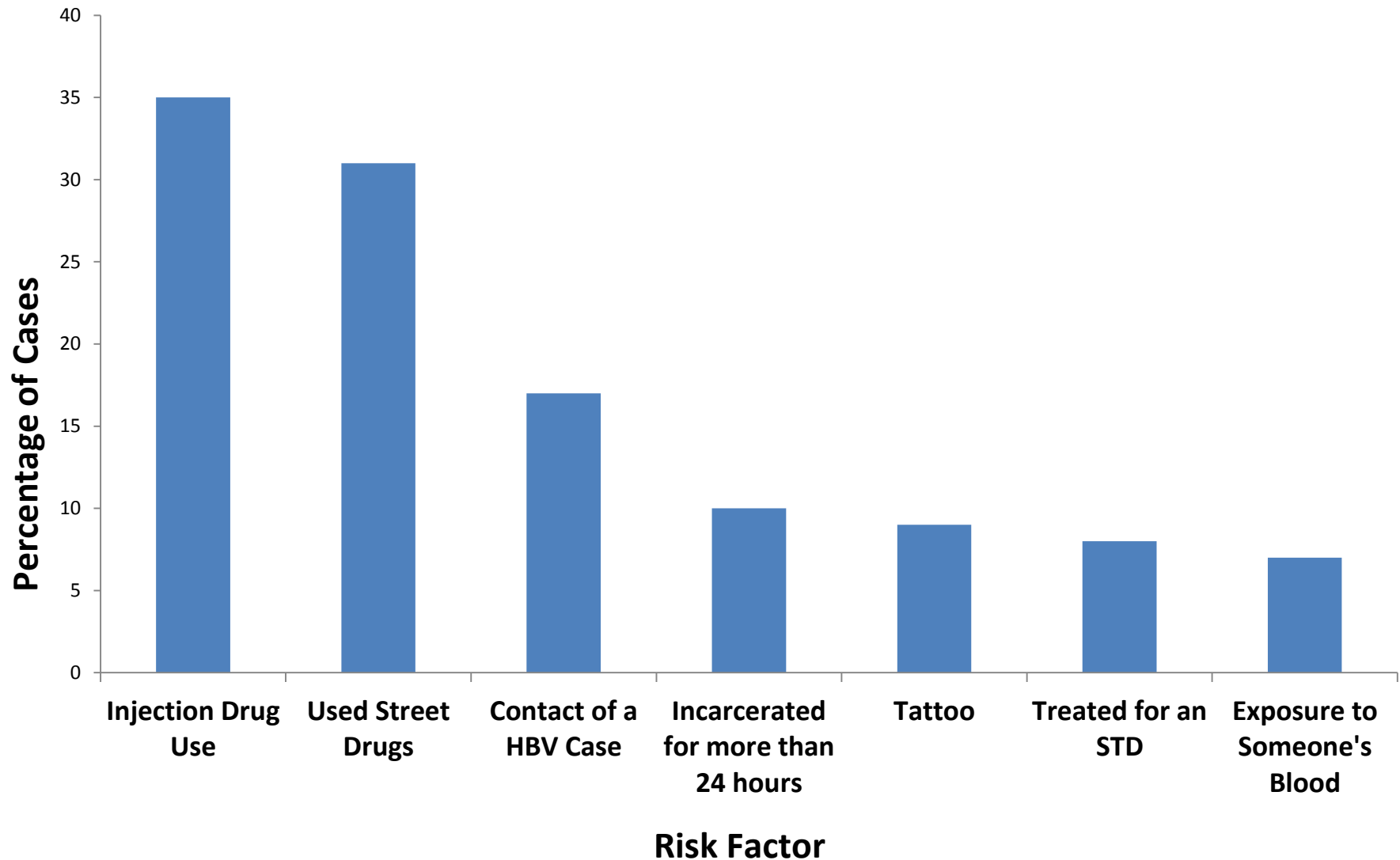


# Acute Hepatitis B by Age & Gender - West Virginia, 2014 (n=186)



\*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



\*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)

# Acknowledgements

- **Stacy Tressler, MPH, *Vaccine Preventable Disease Epidemiologist***
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