

# The Epidemiology of Hepatitis B in West Virginia

West Virginia Public Health Symposium 2015

Ashley Simmons, MS

Hepatitis B Epidemiologist

West Virginia Department of Health and Human Resources

Bureau for Public Health

Office of Epidemiology and Prevention Services

Division of Infectious Disease Epidemiology



WEST VIRGINIA  
Department of  
**Health &  
Human  
Resources**  
BUREAU FOR PUBLIC HEALTH

# Objectives

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



## Hepatitis B Virus (HBV)

- Acute HBV
- Chronic HBV

## Hepatitis B in the United States (U.S.)

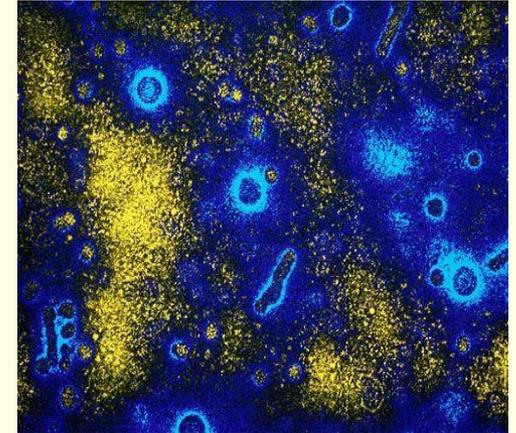
- 46k new infections each year
- 1.4 million with chronic HBV

## Hepatitis B Worldwide

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

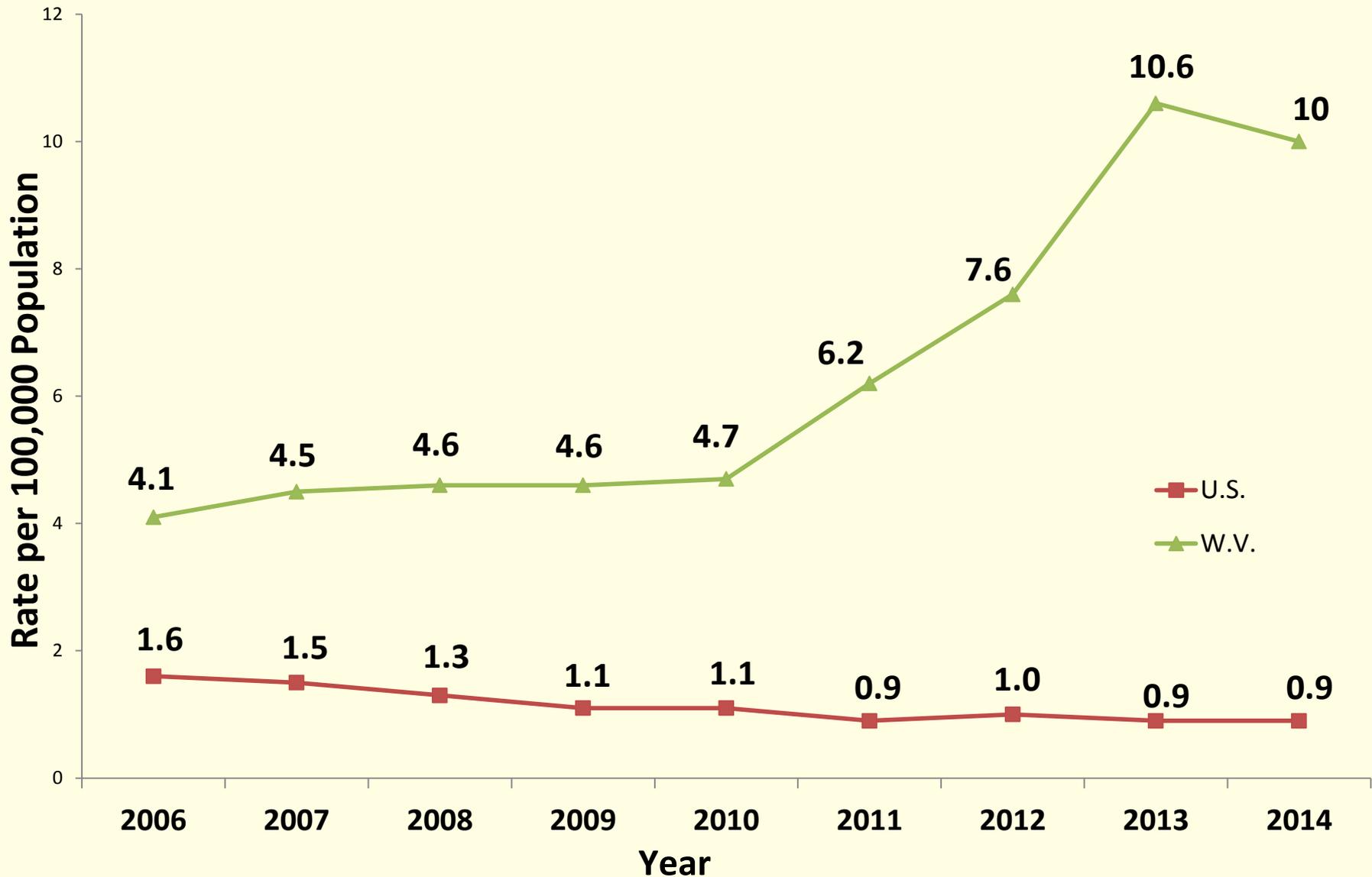
## Hepatitis B's significance in West Virginia

- Highest rate of HBV in the U.S.



HBV Under Electron  
Microscope

# Acute Hepatitis B 2006 – 2014, West Virginia and 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

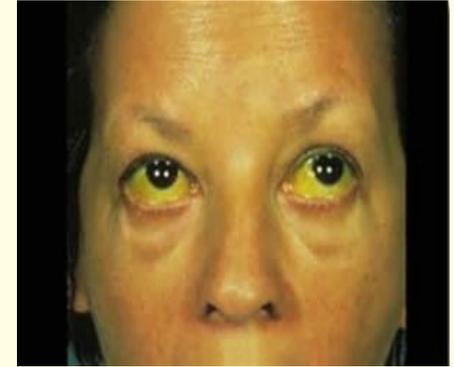
## Hepatitis B rates rising with increased drug abuse



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
- Job that exposes you to human blood
- Traveling to regions with high infection rates

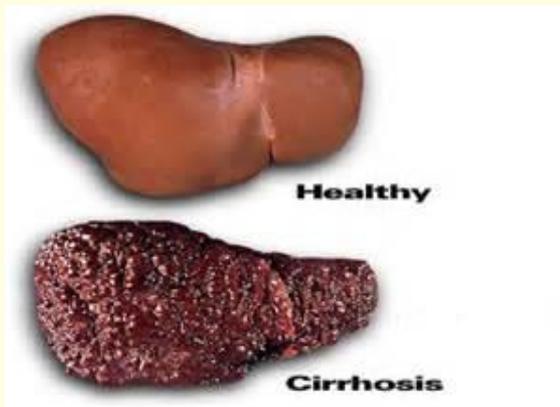


# Hepatitis B Complications

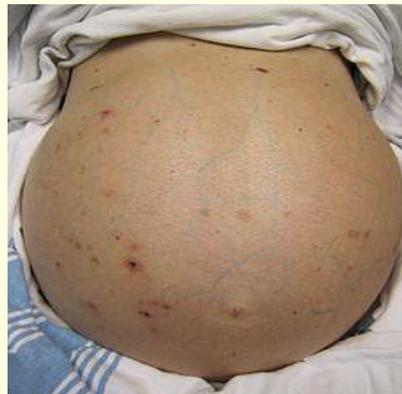
- Scarring of the liver (cirrhosis)
- Liver cancer
- Liver failure



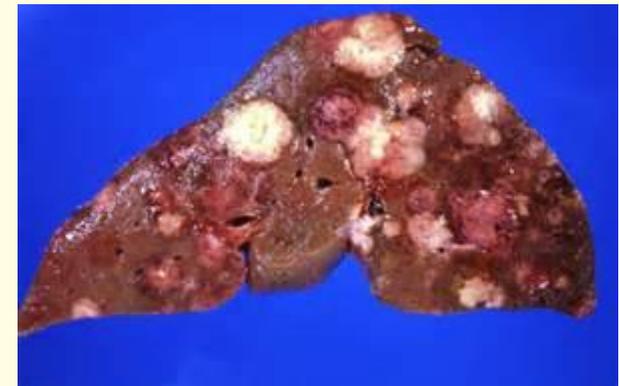
**Hepatoma**



**Cirrhosis**



**Liver failure**



**Liver Cancer**

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

- HBV vaccine
- HBV immune globulin (HBIG)

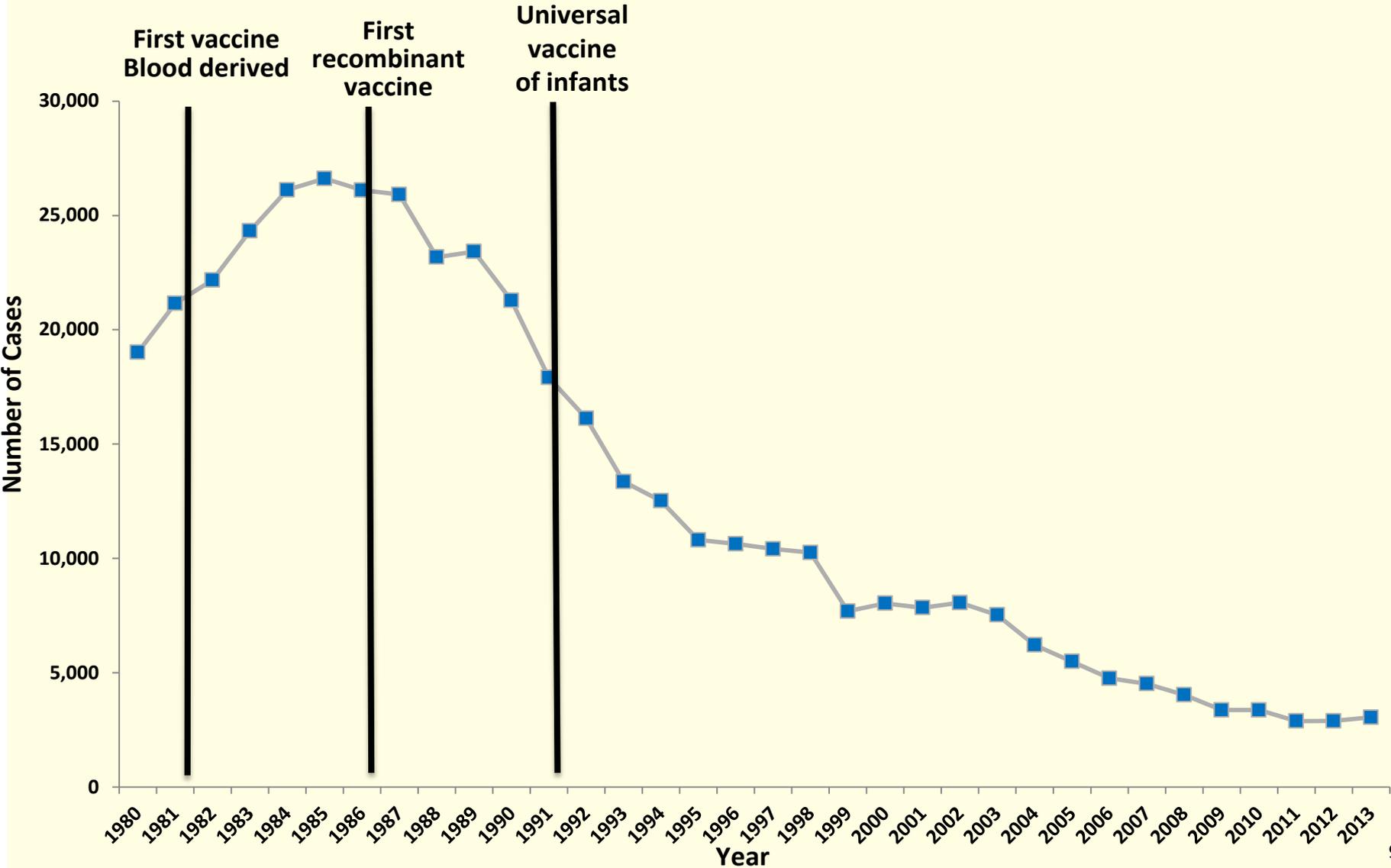
## Infants born to HBV positive mothers

- 90% chance of developing chronic HBV *if infected*



# 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

- 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



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

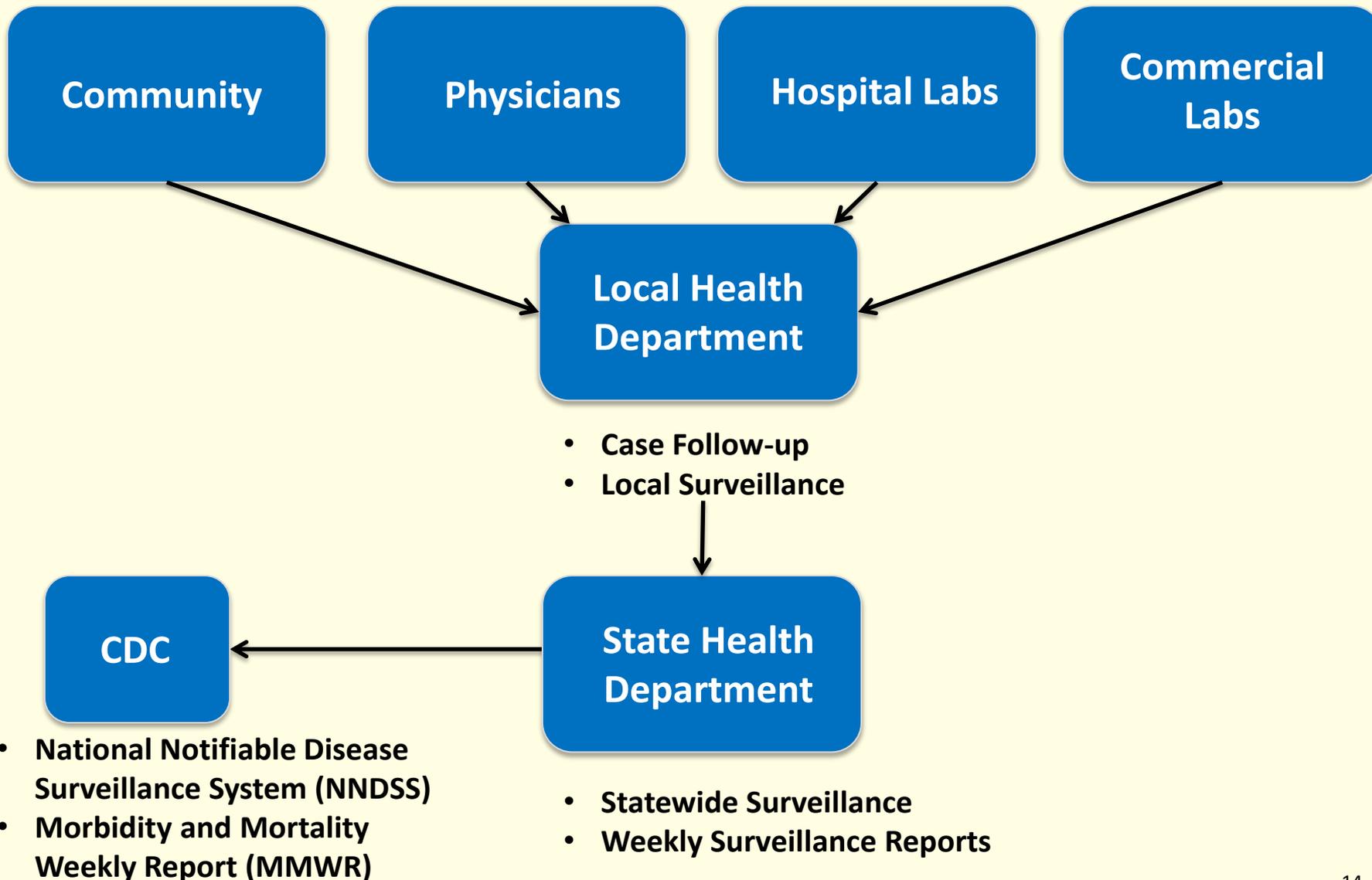
- Potential threat to the general population

## West Virginia Communicable Disease Rule (64CSR7)

- Report Hepatitis B within 24 hours to local health department in the county of the patients residence



# Surveillance Reporting Framework



# Surveillance Case Definitions

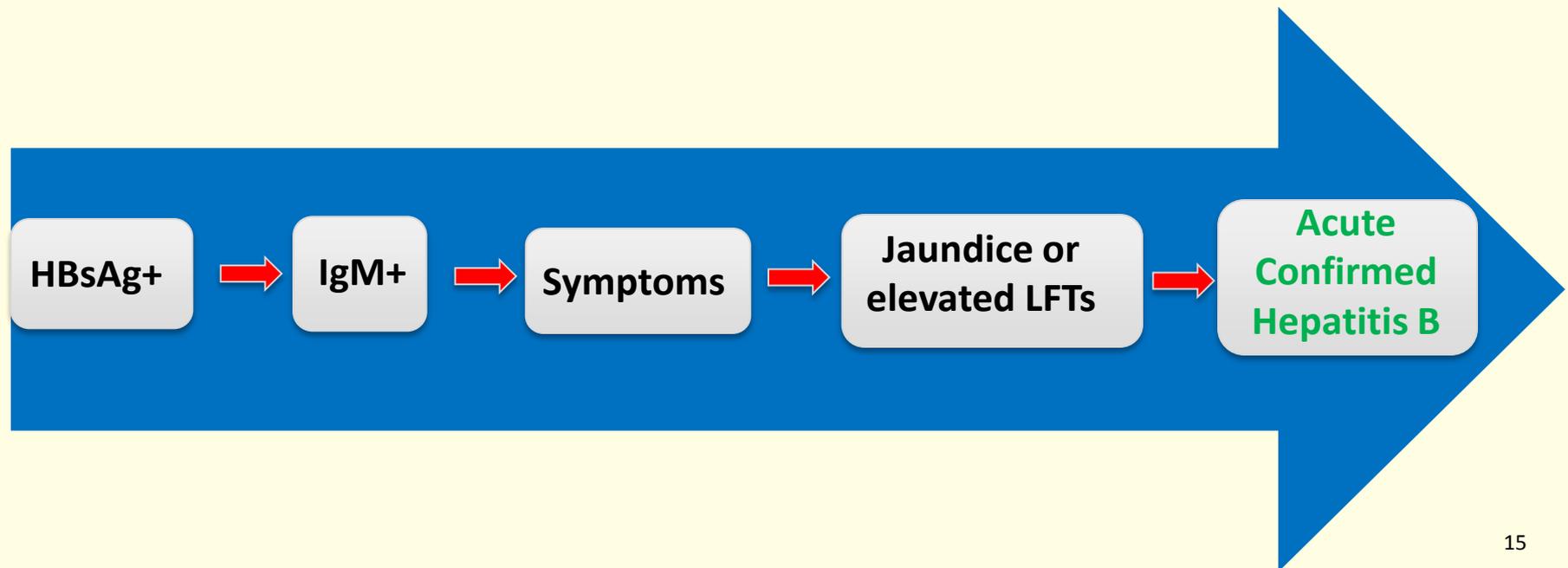
## Acute HBV

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

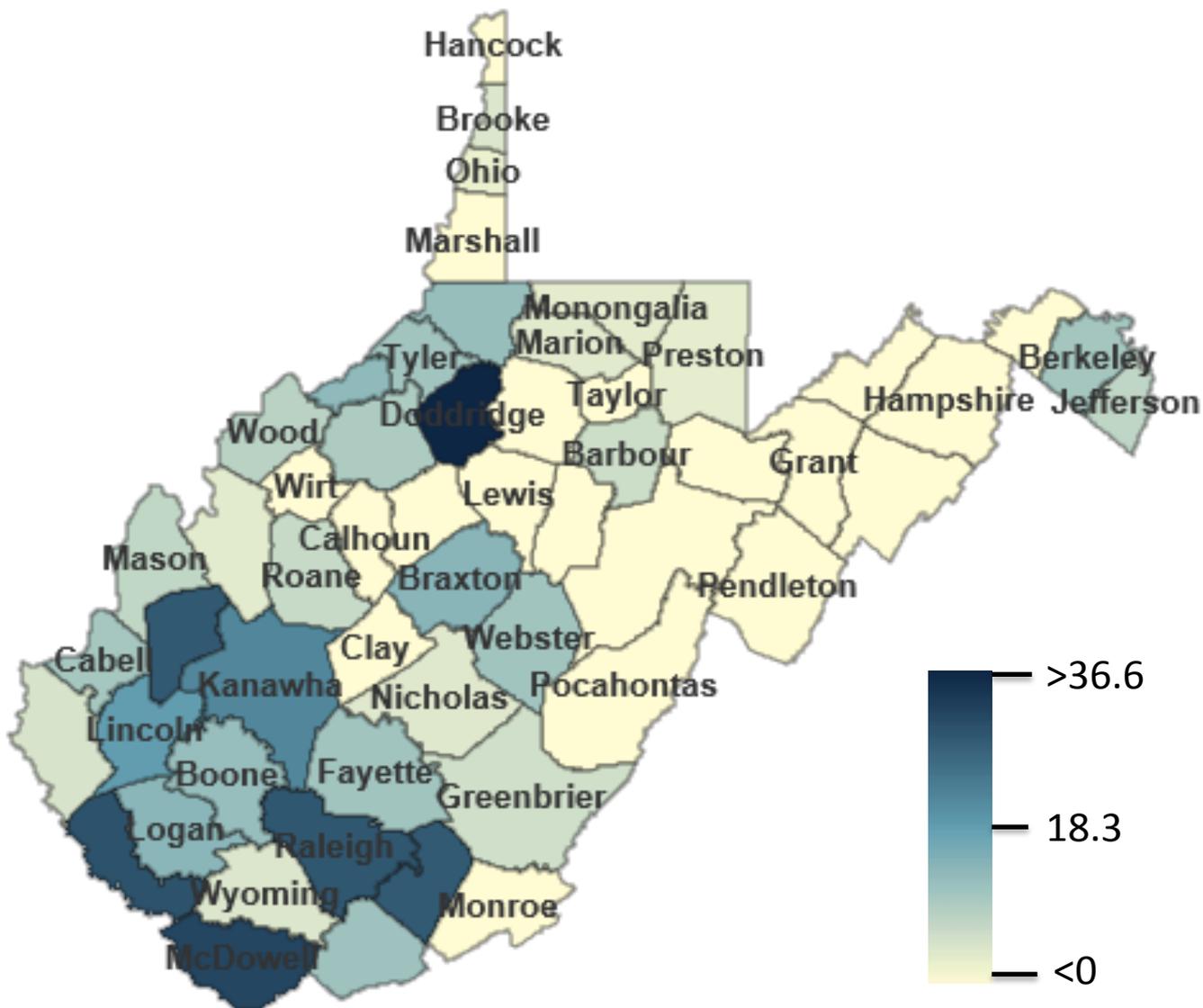
## Chronic HBV

- Chronic *confirmed* or Chronic *probable*

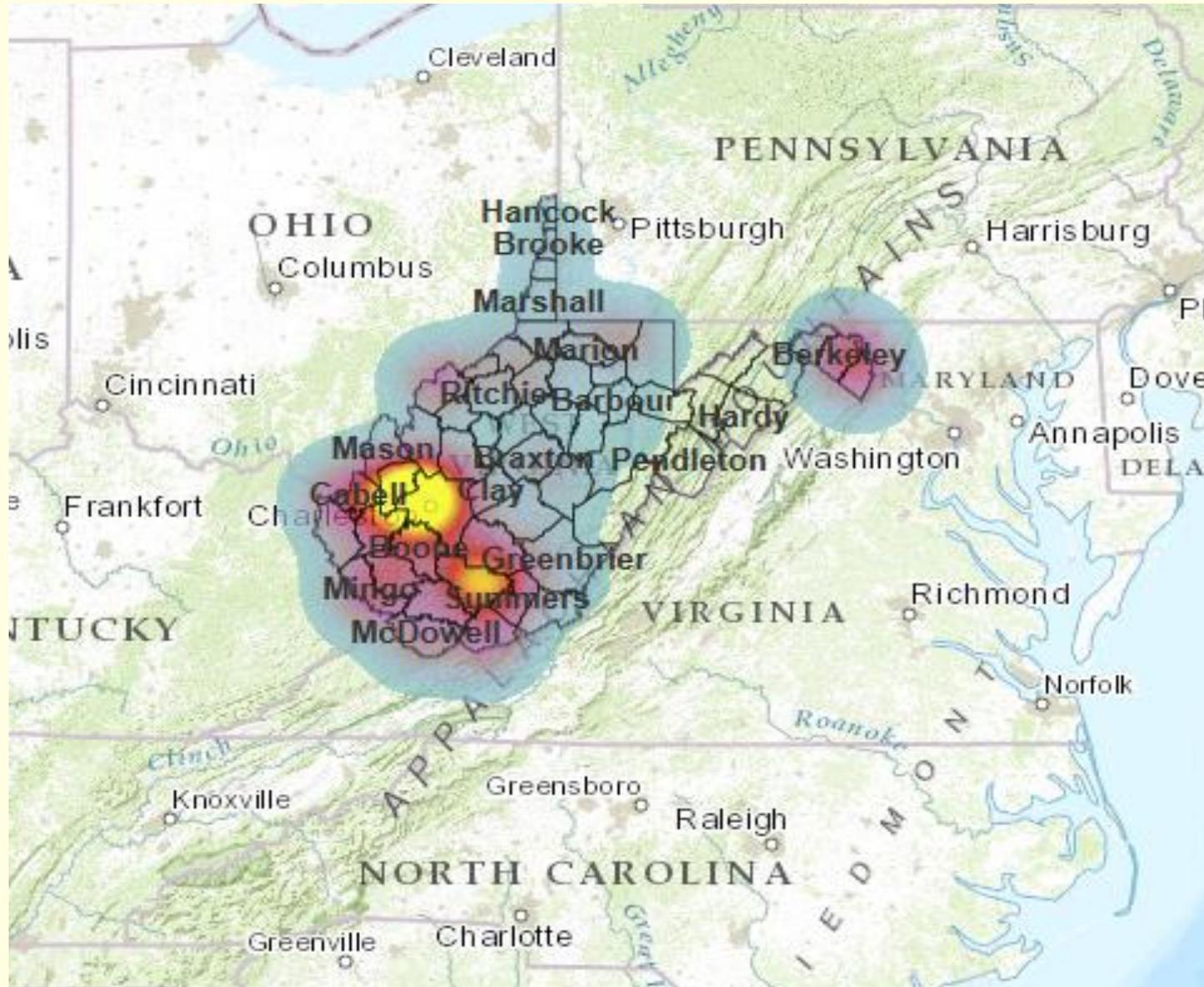
## Council of State and Territorial Epidemiologists (CSTE)



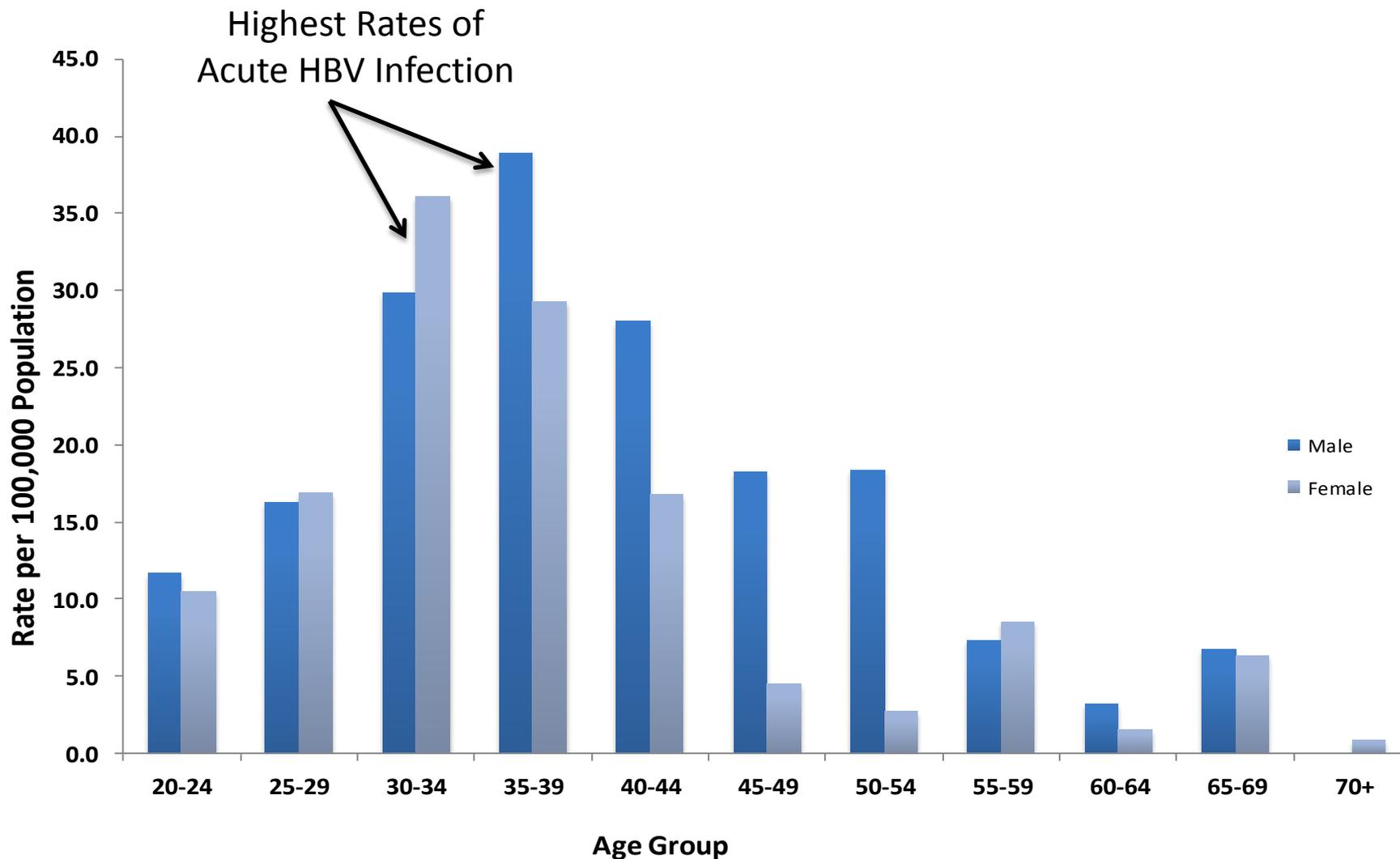
# Rate per 100,000 of Acute Hepatitis B - West Virginia, 2014



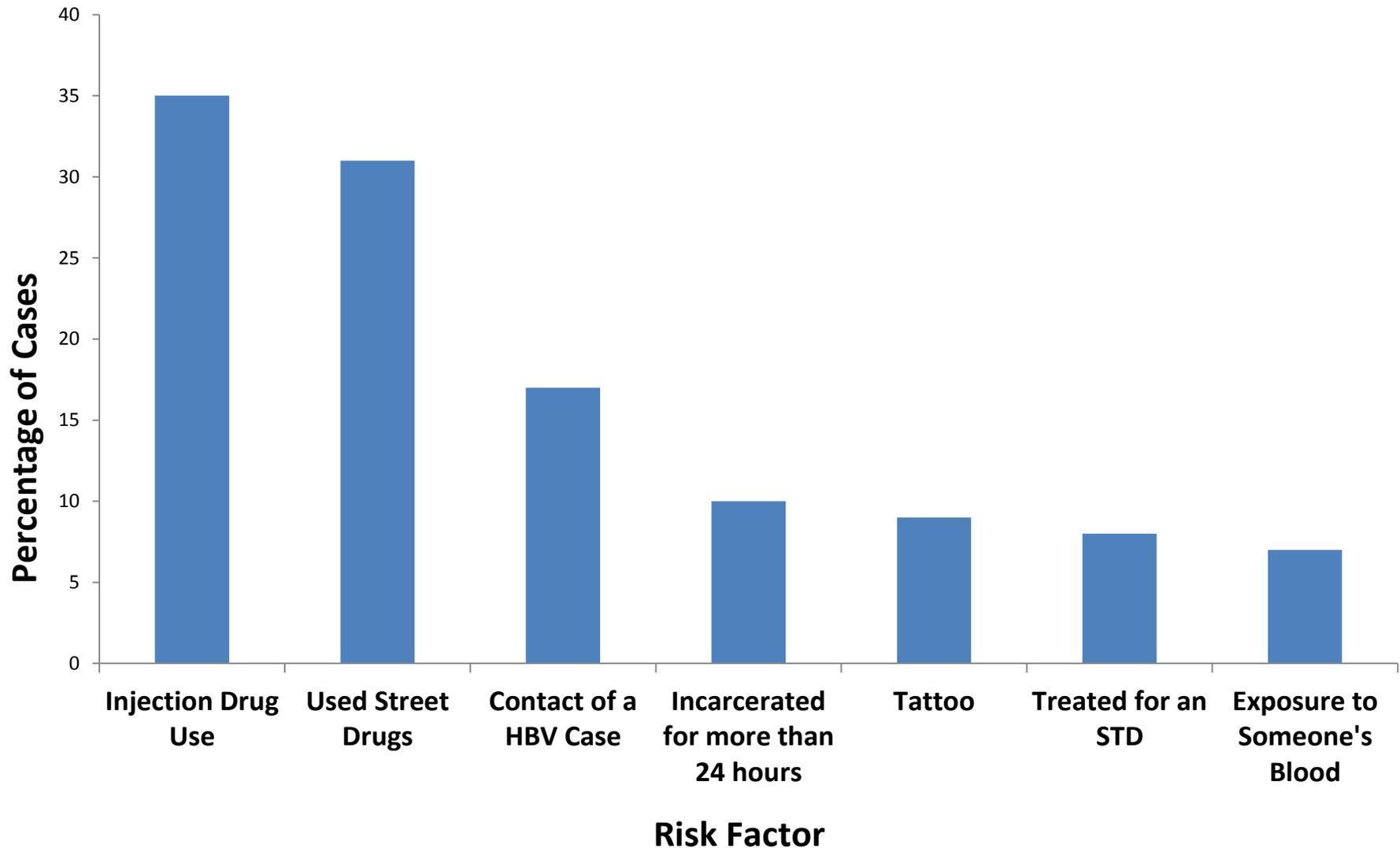
# Concentration of Acute Hepatitis B - West Virginia, 2014



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



# Acute Hepatitis B Risk Factors Reported - West Virginia, 2014



\*Patient can report more than one risk factor

## **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, HIV & Hepatitis (DSHH)**

- Viral Hepatitis Prevention Coordinator
- Disease Intervention Specialists (DIS)

# Acknowledgements

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# Contact

Ashley Simmons, MS

Hepatitis B Epidemiologist

West Virginia Department of Health and Human Resources

Bureau for Public Health

Office of Epidemiology and Prevention Services

Division of Infectious Disease Epidemiology

350 Capitol Street Room 125

Charleston, WV 25301

Phone: (304) 558-5358 ext. 1

Fax: (304) 558-8736

[ashley.n.simmons@wv.gov](mailto:ashley.n.simmons@wv.gov)

[www.dide.wv.gov](http://www.dide.wv.gov)