Infectious Disease Epidemiology for Local Health Administrators
Objectives

- Explain ...
  - Epidemiology
  - Legal basis for local health epidemiology activities
- Surveillance and outbreak investigation
  - Legal basis
  - Protocols and support documents
  - Data
- Evaluation
- Recommendations for training and support
What is Epidemiology?

• Basic science of public health ...

• Epidemiologists ask:
  • Who is getting ill?
  • What is the illness?
  • When do people get ill?
  • Where are people getting ill?
  • Why are people getting ill?
  • How can we stop people from getting ill?
Epidemiology Specialties

• Chronic disease
  • Cancer
  • Heart disease
• Environmental health
  • Contaminated air, water ...
• Injury
• Infectious diseases
  • HIV, STD
  • Tuberculosis
  • Other
Division of Infectious Disease Epidemiology

“Surveillance, prevention and control of infectious disease in West Virginia”

- Foodborne diseases
- Invasive bacterial disease
- Vaccine preventable disease
- Hepatitis
- Zoonotic diseases
- Healthcare associated infections

www.dide.wv.gov
Understand disease occurrence in our state...

**Who?**
- Age, sex, race, ethnicity?
- Occupation? Risk factors?

**What?**
- Case definition
- Signs, symptoms, lab results?
- Hospitalization? Death?

**When?**
- Onset date?
- Diagnosis date?

**Where?**
- County?
- School, workplace?
- Health facility?
Prevention

Keep illness from occurring ...

- Immunization
- Hand hygiene
- Respiratory hygiene / cough etiquette
- Infection prevention in health facilities
- Mosquito, tick and rodent control
- Food safety
- Clean indoor air
Control

After illness has occurred, keep it from spreading ...

- Isolation
- Furlough or quarantine
- Effective treatment of case
- Prophylaxis or immunization of contacts
- Infection control in health facilities
Legal Basis for LHD Activities

Definition:
64CSR7-2.34
Local Health Officer – The individual who fulfills the duties and responsibilities of the health officer for a local board of health, or his or her designee.
64CSR7-16 “Responsibilities of Local Health Officers”

16.2 Annually notify reporting sources of reporting requirements:

• Health care providers
• Facilities
• Laboratories
• Potential rabies exposures and animal bites: veterinarians, animal control officers, humane shelters
64CSR7-16 “Responsibilities of Local Health Officers”

16.3 Maintain a record ... according to the record retention schedule for the local health department ... give the information ... to their successor
64CSR7-16 “Responsibilities of Local Health Officers”

16.4.a ... investigate the source of the disease or condition, identify contacts, look for undetected and unreported cases, and implement the prevention and control methods specified by the ... West Virginia Reportable Disease Protocol Manual ... or developed in consultation with the Commissioner
64CSR7-16 “Responsibilities of Local Health Officers”

16.4.e Report any disease or condition listed in this rule to the Bureau within the time frame specified in each category.
64CSR7-16 “Responsibilities of Local Health Officers”

16.7. If a health care provider, health care facility, laboratory ... failed to report a reportable disease, outbreak ... the local health officer shall notify the responsible individual or facility and shall request an explanation ...

16.8 The local health officer shall report to the Commissioner ... reason for failure to comply ...
Disease Surveillance for Local Health Administrators

Maria del Rosario, MD, MPH
Division of Infectious Disease Epidemiology (DIDE)
Overview

• Reportable disease rule and
  • Category of reporting
  • West Virginia Electronic Disease Surveillance System (WVEDSS)
  • Electronic laboratory reporting (ELR)
• Protocols, quick surveillance guide, other tools
• Website
• Surveillance data
• Indicator data
# Disease Reporting - Requirements

**West Virginia Reportable Infectious Diseases**

Facilities and Providers (WV Code 16-3-1; 64CSR7)

Reporting of the following communicable diseases is required by law as follows:

<table>
<thead>
<tr>
<th>Category</th>
<th>Reporting Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Report suspect or confirmed cases immediately to the Local Health department</td>
</tr>
<tr>
<td>II</td>
<td>Report within 24 hours to the Local Health Department</td>
</tr>
<tr>
<td>III</td>
<td>Report within 72 hours to the Local Health Department</td>
</tr>
<tr>
<td>IV</td>
<td>Report within 1 week to the Local Health Department</td>
</tr>
<tr>
<td>V</td>
<td>Report within 1 week to the state health department</td>
</tr>
</tbody>
</table>

### Category I
- Anthrax
- Botulism
- Foodborne outbreak
- Intentional exposure to an infectious agent or biological toxin
- Novel influenza infection, animal or human
- Orthopox infection, including smallpox and monkeypox
- Outbreak or cluster of any illness or condition
- Plague
- Rubella
- Rubella, congenital syndrome
- Rubella (Measles)
- SARS coronavirus infection
- Smallpox
- Tularemia
- Viral hemorrhagic fevers
- Waterborne outbreak

### Category II
- Animal bites
- Brucellosis
- Cholera
- Dengue fever
- Diphtheria
- Hemophilus influenzae, invasive disease
- Hemolytic Uremic Syndrome, postdiarrheal
- Hepatitis A, acute
- Hepatitis B, acute, chronic or perinatal
- Hepatitis D
- Meningococcal disease, invasive
- Mumps, acute infection
- Pertussis (whooping cough)
- Poliomyelitis
- Q-fever (Coxiella burnetii)
- Rabies, human or animal
- Shiga toxin-producing Escherichia coli (STEC)
- Staphylococcus aureus with glycopeptide-intermediate (GISA/VISA) or glycopeptide-resistant (GRSA/VRSA) susceptibilities
- Tuberculosis; all forms
- Typhoid fever (Salmonella typhi)
- Yellow fever
- Any other unusual condition or emerging infectious disease

### Category III
- Campylobacteriosis
- Cryptosporidiosis
- Cyclospora
- Giardiasis
- Legionellosis
- Leptospirosis
- Lyme disease
- Malaria
- Psittacosis
- Rocky Mountain spotted fever
- Streptococcal disease, invasive Group B
- Streptococcal toxic shock syndrome
- Streptococcus pneumoniae, invasive
- Tetanus
- Toxic Shock Syndrome
- Tuberculosis, latent infection

### Category IV
- Anaplasmosis
- Arboviral infection
- Babesiosis
- Ehrlichiosis
- Chickenpox (numerical totals only)
- Hantavirus pulmonary syndrome
- Influenza-like illness (numerical totals only)
- Influenza-related death in an individual less than 18 years of age
- Legionellosis
- Leptospirosis
- Lyme disease
- Malaria
- Psittacosis
- Rocky Mountain spotted fever
- Streptococcal disease, invasive Group B
- Streptococcal toxic shock syndrome
- Streptococcus pneumoniae, invasive
- Tetanus
- Toxic Shock Syndrome
- Tuberculosis, latent infection

### Category V
- AIDS
- Chancroid
- Chlamydia
- Gonococcal conjunctivitis of the newborn (within 24 hours)
- Gonococcal disease, drug resistant (within 24 hours)
- Gonococcal disease, all other
- Hepatitis C, acute
- HIV
- Pelvic inflammatory disease
- Syphilis (late)
- Syphilis, primary, secondary or early latent (less than 1 year duration) or congenital (less than 1 year duration)

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Report name, address, telephone number, date of birth, sex, race, ethnicity and the physician’s name, office address, office phone and fax numbers, using the appropriate disease reporting form in the West Virginia Reportable Disease Protocol Manual: [www.dhhr.wv.gov](http://www.dhhr.wv.gov)

West Virginia Department of Health & Human Resources Bureau for Public Health
150 Capitol Street, Room 325
Charleston, WV 25301
Phone: 304.556.5350, ext. 2
In WV: 800.423.1271, ext. 2
Fax: 304.556.5759

[http://www.dhhr.wv.gov/oeps/disease/Reporting/Pages/default.aspx](http://www.dhhr.wv.gov/oeps/disease/Reporting/Pages/default.aspx)
Healthcare Providers (HCPs) report:

- By telephone call to local health department (LHD) followed by written report
  - Category I (immediately notify)
  - Category II (notify within 24 hours)

- To LHD
  - Category III (within 72 hours)
  - Category IV (within 1 week)

- To state health department, e.g. DIDE
  - Category V (within 1 week)
Pathway of Surveillance and Feedback

Sick Person

REPORTING SOURCES
- Physician, clinics – call, write/fax
- Hospitals
- Laboratories - ELR
- Other (school nurse, nursing homes, etc.)

LHD
- Investigate
- Follow-up
- Act/advise

DIDE
- Consult
- Guide
- Recommend

WVEDSS
- Case (patient) report
- Completed investigation/report

Share results

Surveillance summary
Surveillance indicator evaluation
Disease Reporting - Methods

- ELR
- WVEDSS

- Provider, laboratory, public health responsibilities
- Disease and agent information
- Prevention and treatment

Rubeola (Measles)

Reporting Guidelines

- Suspect or confirmed cases immediately to local health department by phone and follow up with written report

Protocol

- Measles Protocol
- CDC Surveillance Manual for Measles

Current Case Definition

- CDC Case Definition

Required Forms

**SURVEILLANCE DATA**

Public health surveillance is the systematic collection, consolidation, and use of epidemiologic information to monitor health problems to facilitate disease prevention or control.

In West Virginia, the Reportable Disease Rule (64CSR-7) mandates which diseases and conditions must be reported to public health authorities. It also defines the responsibilities of different individuals and facilities in disease control and prevention.

Surveillance data, findings, and results of the evaluation (of surveillance data) are valuable in setting priorities, program planning and implementation, and assessment of program effectiveness.

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1. Surveillance Data
2. Evaluation
3. Quick Surveillance Guide
3. Quick Surveillance Guide

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Disease Surveillance Data

SURVEILLANCE DATA

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- WEEKLY REPORT
- ANNUAL REPORT
- EVALUATION
- RESOURCES

West Virginia Provisional Weekly Infectious Disease Surveillance Report
As of Week Ending September 26, 2015

<table>
<thead>
<tr>
<th>Reportable Condition</th>
<th>2015 YTD Total</th>
<th>2014 Comparable YTD Period</th>
<th>2014 Total for Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anaplasmosis</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anthrax</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Babesiosis</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Botulism</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brucellosis</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Campylobacteriosis</td>
<td>199</td>
<td>194</td>
<td>270</td>
</tr>
</tbody>
</table>

Beginning Date: 9/20/2015
Ending Date: 9/26/2015

Last Week: 9/20/2015 - 9/26/2015
YTD Total: 9/20/2015 - 9/26/2015
Total for Year: 12/28/2013 - 1/3/2015
Disease Surveillance Data

SURVEILLANCE DATA

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Surveillance data, findings, and results in setting priorities, program planning effectiveness.

Annual Reports

NOTE: Surveillance data is subject to change as additional information becomes available.

- 2014 Infectious Disease Report
- 7 Year Case Report by Year of Onset (2007-2013)
- 2013 Infectious Disease Report
- 2012 Infectious Disease Report
- 2011 Infectious Disease Report

ANNUAL REPORTS ARCHIVED

Counts of 2014 WV cases per condition and broken down by county, race, etc.
Counts of WV cases per condition and broken down by county, race, etc. for the years from 2007 to 2013
Counts of 2013 WV cases per condition and broken down by county, race, etc.
Counts of 2012 WV cases per condition and broken down by county, race, etc.
Counts of 2011 WV cases per condition and broken down by county, race, etc.
## Disease Surveillance Data

### 2014 Annual Report

<table>
<thead>
<tr>
<th>Condition</th>
<th>Barbour</th>
<th>Berkeley</th>
<th>Boone</th>
<th>Braxton</th>
<th>Brooke</th>
<th>Cabell</th>
<th>Calhoun</th>
<th>Clay</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anaplasmosis</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Animal bites</td>
<td>Not available</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arboviral infection</td>
<td>See <a href="http://www.dhhr.wv.gov/oeps/disease/zoonosis/">www.dhhr.wv.gov/oeps/disease/zoonosis/</a></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brucellosis</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Campylobacteriosis</td>
<td>1</td>
<td>30</td>
<td>5</td>
<td>2</td>
<td>4</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chickenpox</td>
<td>1</td>
<td>2</td>
<td></td>
<td>4</td>
<td>19</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cryptosporidiosis</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dengue Fever</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ehrlichiosis, chaffeensis</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Foodborne outbreak**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Giardiasis</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Group B Streptococcus, invasive</td>
<td>8</td>
<td>3</td>
<td></td>
<td>3</td>
<td>7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Haemophilus influenza</em>, invasive</td>
<td>5</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hepatitis A, acute</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hepatitis B, acute</td>
<td>1</td>
<td>11</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hepatitis B, chronic</td>
<td>19</td>
<td>11</td>
<td>3</td>
<td>4</td>
<td>14</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hepatitis C, acute</td>
<td>1</td>
<td></td>
<td>1</td>
<td></td>
<td>1</td>
<td>1</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Hepatitis C, chronic or resolved (Prevalence)</td>
<td>82</td>
<td>268</td>
<td>83</td>
<td>79</td>
<td>47</td>
<td>618</td>
<td>10</td>
<td>38</td>
</tr>
</tbody>
</table>
Surveillance indicators are surveillance information that measures adequacy of case investigations, timeliness of notification, timeliness of response, etc. (CDC)
Objectives:

- Improve data quality
- Data feedback
- Identify areas for improvement
- Comply with funding requirements
## Disease Surveillance Indicator - Methods

<table>
<thead>
<tr>
<th>Notifiable Infectious Disease</th>
<th>Completeness of Disease Data</th>
<th>Timeliness of Disease Report</th>
<th>Timeliness of Public Health Action</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>VACCINE-PREVENTABLE DISEASES</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Invasive Hemophilus influenza disease</td>
<td>YES</td>
<td>YES</td>
<td>N/A</td>
</tr>
<tr>
<td>Measles</td>
<td>YES</td>
<td>YES</td>
<td>Yes</td>
</tr>
<tr>
<td>Invasive pneumococcal infection</td>
<td>YES</td>
<td>YES</td>
<td>N/A</td>
</tr>
<tr>
<td>Pertussis</td>
<td>YES</td>
<td>YES</td>
<td>Yes</td>
</tr>
<tr>
<td>Invasive meningococcal disease</td>
<td>YES</td>
<td>YES</td>
<td>Yes</td>
</tr>
<tr>
<td>Mumps</td>
<td>YES</td>
<td>YES</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>VIRAL HEPATITIS</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hepatitis B, Acute</td>
<td>YES</td>
<td>YES</td>
<td>Yes</td>
</tr>
<tr>
<td>Hepatitis C, Acute</td>
<td>YES</td>
<td>YES</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>FOOD and WATERBORNE DISEASES</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Botulism</td>
<td>YES</td>
<td>YES</td>
<td>Yes</td>
</tr>
<tr>
<td>Hepatitis A</td>
<td>YES</td>
<td>YES</td>
<td>Yes</td>
</tr>
<tr>
<td>STEC</td>
<td>YES</td>
<td>YES</td>
<td>Yes</td>
</tr>
<tr>
<td>Campylobacteriosis</td>
<td>YES</td>
<td>YES</td>
<td>N/A</td>
</tr>
<tr>
<td>Giardiasis</td>
<td>YES</td>
<td>YES</td>
<td>N/A</td>
</tr>
<tr>
<td>Salmonellosis</td>
<td>YES</td>
<td>YES</td>
<td>N/A</td>
</tr>
<tr>
<td>Shigellosis</td>
<td>YES</td>
<td>YES</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>ZOOONOTIC DISEASES</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lyme Disease</td>
<td>YES</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>LaCrosse Encephalitis</td>
<td>YES</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Tularemia</td>
<td>YES</td>
<td>YES</td>
<td>Yes</td>
</tr>
</tbody>
</table>
EVALUATE COMPLETENESS OF DEMOGRAPHIC INFORMATION

- Age
- Date of birth
- Gender
- Ethnicity
- Race
- First name
- Last name
- Address
- City
- County
- State
- Zip code
EVALUATE TIMELINESS

- **Reporting to WVEDSS (Time to Report)**
  - Measures timeliness of notification to WVEDSS regardless of case status
  - *Date of Laboratory Report or Date of Diagnosis to PHC Add Time* (date entered in WVEDSS)
  - Data used: All Investigations (includes Not a Case records)
  - Benchmark: by disease category per WV reportable disease rule

- **Reporting to CDC (Time to Close/Completion)**
  - Measures timeliness of completion of case report
  - *PHC Add Time to 1st Notification Sent Date* (date report submitted to CDC)
  - Data used: All Investigations except La Crosse and Lyme Disease
  - Benchmark: 30 days

- **Public Health Action (PHA) Time**
  - Measures timeliness of public health response to a case following notification
  - *PHC Add Time to Date of Public Health Action*
  - Data used: All Cases requiring Public Health Action
  - Benchmark: disease-specific per protocol

A TIMELY investigation/report/action must have a date reported in the field with a timeframe that is equal to or less than the benchmark.
Disease-specific Indicators

**VACCINE-PREVENTABLE DISEASES**

**Invasive Hemophilus influenzae disease**
1. Proportion of *H. influenzae* cases reported with complete information (clinical, demographic, vaccine history, and serotype testing).
2. Proportion of Hib cases among children younger than 5 years of age with complete vaccination history.
3. Proportion of *H. influenzae* cases among children younger than 5 years of age with serotyped isolate.
4. Proportion of cases reported to public health within the required timeframe.

**Measles**
1. Proportion of confirmed cases reported with complete demographic and clinical information.
2. Proportion of confirmed cases that are laboratory confirmed.
3. Proportion of cases that have an imported source.
4. Proportion of cases for which at least one clinical specimen was obtained.
5. Proportion of cases reported in a timely manner.
6. Proportion of cases with timely initiation of control measures.

**Invasive pneumococcal infection**
1. Proportion of children under 5 years of age who have received a pneumococcal vaccine:
   a) Complete vaccination history
   b) Isolates serotyped
   c) Isolates tested for antimicrobial resistance

**SURVEILLANCE INDICATORS**

Surveillance indicators are found at:
1. Quick Surveillance Guide
2. Specific disease protocols

**VIRAL HEPATITIS**

**Hepatitis B, Acute**
1. Proportion of acute cases with complete demographic information.
2. Proportion of acute cases with complete clinical information.
3. Proportion of acute cases with complete risk factor/exposure information.
4. Proportion of acute cases with complete vaccination history.
5. Proportion of acute cases that have received education and the date they were educated.
6. Proportion of acute cases reported to public health within the required timeframe.

**Hepatitis C, Acute**
1. Proportion of acute cases of hepatitis C with complete demographic information
2. Proportion of acute cases of hepatitis C with complete information on risk factors
3. Proportion of acute cases of hepatitis C who have been educated.

**FOOD and WATERBORNE (ENTERIC) DISEASES**

**Botulism**
1. Proportion of cases with complete demographic information.
2. Proportion of cases with complete clinical severity information (hospitalization and death).
3. Proportion of cases with treatment information (administration of antitoxin).
### Disease-specific Indicators – 2014 Results


#### Surveillance Indicator Evaluation: Completeness of Cases Reported 2014

<table>
<thead>
<tr>
<th></th>
<th>Number of Cases</th>
<th>Complete Risk Factor Investigation</th>
<th>Hospitalization</th>
<th>Death</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>STATEWIDE</strong></td>
<td>180</td>
<td>71%</td>
<td>98%</td>
<td>97%</td>
</tr>
<tr>
<td><strong>CENTRAL REGION</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Braxton</td>
<td>2</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Kanawha</td>
<td>14</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Lewis</td>
<td>1</td>
<td>0%</td>
<td>100%</td>
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</tr>
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<tr>
<td>Webster</td>
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#### Percentage of Acute Confirmed Hepatitis B Cases with Complete Information — WV, 2014 By Region

(Percent represents the proportion of cases with a complete (yes or no) answer)

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Total Cases</th>
<th>West Virginia</th>
<th>Southern</th>
<th>Central</th>
<th>Eastern</th>
<th>Northeastern</th>
<th>Northwestern</th>
<th>Central</th>
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<td>Ethnicity</td>
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<td>84%</td>
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<td>80%</td>
<td>50%</td>
<td>73%</td>
<td>82%</td>
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<td>Race</td>
<td>92%</td>
<td>98%</td>
<td>94%</td>
<td>100%</td>
<td>60%</td>
<td>87%</td>
<td>90%</td>
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<td>Symptomatic (yes)</td>
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<td>100%</td>
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<td>100%</td>
<td>100%</td>
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<tr>
<td>Jaundice</td>
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<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Was the patient a contact of a person with confirmed or suspected acute or chronic HBV infection?</td>
<td>94%</td>
<td>100%</td>
<td>86%</td>
<td>87%</td>
<td>90%</td>
<td>80%</td>
<td>98%</td>
<td></td>
</tr>
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<td>Indicator</td>
<td>Target</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Investigate and respond to reports of reportable infectious disease conditions according to the Reportable Disease Rule (WV 64 CSR-7) and disease protocol manual</td>
<td>Proportion of disease investigations that were lost to follow-up</td>
<td>TBD</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Proportion of disease cases reported to WVEDSS from January 1 to December 31 of the previous year with complete demographic data</td>
<td>100%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Proportion of disease cases reported to WVEDSS from January 1 to December 31 of the previous year with complete risk factor data for viral hepatitis, food and waterborne diseases, and vaccine-preventable diseases</td>
<td>TBD</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>Proportion of disease cases reported to WVEDSS from January 1 to December 31 of the previous year with complete vaccine information for vaccine preventable diseases including hepatitis B</td>
<td>100%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Submit reports in WVEDSS</td>
<td>Proportion of disease investigations submitted to CDC within 30 days of report</td>
<td>TBD</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Educate community partners to recognize and report outbreaks and share the reportable disease rule</td>
<td>Number of outbreaks reported from January 1 to December 31 of the previous year</td>
<td>TBD</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LHD reporting outbreaks to DIDE within 60 minutes</td>
<td>Proportion of outbreaks reported within 1 hour of notification from January 1 to December 31 of the previous year</td>
<td>90%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LHDs investigate outbreaks and prepare a written report at the outbreak completion</td>
<td>Proportion of outbreaks with an outbreak report from January 1 to December 31 of the previous year</td>
<td>90%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Educate staff and partners on the importance of lab testing and the timely collection of appropriate specimen | Proportion of the following outbreak types with clinical laboratory testing from January 1 to December 31 of the previous year:  
  a. Respiratory  
  b. Foodborne                                                                                        | a. 90%  
  b. 100% |
| LHD recruit and maintain actively reporting influenza sentinel provider. | Percent of time an Influenza Sentinel Provider reports to the ILINet during the influenza surveillance period October (previous year) through May (current year). | 50%          |
## Results of LHD Program Plan Evaluation

### Evaluation of 2014 Surveillance Data Indicators in WVEDSS

<table>
<thead>
<tr>
<th>County</th>
<th>Region</th>
<th>% Lost to follow-up</th>
<th>Demographic information complete</th>
<th>Risk factor information complete</th>
<th><strong>Vaccine information complete</strong></th>
<th>Reporting to CDC</th>
<th>Outbreak (OB)</th>
<th>Reporting with Resp test</th>
<th>OB with FB test</th>
<th>LI SP report, target=50%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barbour</td>
<td>NE</td>
<td>0%</td>
<td>4/100%</td>
<td>3/75%</td>
<td>1/100%</td>
<td>4/50%</td>
<td>0/0%</td>
<td>0/100%</td>
<td>1/100%</td>
<td>100%</td>
</tr>
<tr>
<td>Berkeley</td>
<td>E</td>
<td>19%</td>
<td>133/66%</td>
<td>69/77%</td>
<td>28/80%</td>
<td>107/72%</td>
<td>2/0%</td>
<td>0/100%</td>
<td>100%</td>
<td>94%</td>
</tr>
<tr>
<td>Boone</td>
<td>W</td>
<td>14%</td>
<td>20/85%</td>
<td>14/70%</td>
<td>8/89%</td>
<td>31/42%</td>
<td>1/100%</td>
<td>1/100%</td>
<td>100%</td>
<td>97%</td>
</tr>
<tr>
<td>Braxton</td>
<td>C</td>
<td>0%</td>
<td>7/43%</td>
<td>4/67%</td>
<td>1/33%</td>
<td>7/14%</td>
<td>0/0%</td>
<td>0/100%</td>
<td>100%</td>
<td>0%</td>
</tr>
<tr>
<td>Brooke</td>
<td>NW</td>
<td>17%</td>
<td>9/78%</td>
<td>8/89%</td>
<td>4/100%</td>
<td>10/70%</td>
<td>3/100%</td>
<td>1/100%</td>
<td>100%</td>
<td>97%</td>
</tr>
<tr>
<td>Cabell</td>
<td>W</td>
<td>31%</td>
<td>45/89%</td>
<td>36/84%</td>
<td>25/76%</td>
<td>74/15%</td>
<td>4/75%</td>
<td>2/100%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Calhoun</td>
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<td>1/100%</td>
<td>1/100%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Clay</td>
<td>NW</td>
<td>29%</td>
<td>6/50%</td>
<td>3/60%</td>
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<td>7/86%</td>
<td>1/100%</td>
<td>1/100%</td>
<td>100%</td>
<td>61%</td>
</tr>
<tr>
<td>Doddridge</td>
<td>NE</td>
<td>17%</td>
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<td>4/100%</td>
<td>3/100%</td>
<td>9/56%</td>
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<td>0/100%</td>
<td>100%</td>
<td>0%</td>
</tr>
<tr>
<td>Fayette</td>
<td>S</td>
<td>4%</td>
<td>23/91%</td>
<td>13/57%</td>
<td>9/90%</td>
<td>31/16%</td>
<td>3/67%</td>
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<td>100%</td>
<td>0%</td>
</tr>
<tr>
<td>Gilmer</td>
<td>NW</td>
<td>0%</td>
<td>4/50%</td>
<td>4/100%</td>
<td>1/100%</td>
<td>5/20%</td>
<td>0/0%</td>
<td>0/100%</td>
<td>100%</td>
<td>0%</td>
</tr>
<tr>
<td>Grant</td>
<td>E</td>
<td>13%</td>
<td>8/100%</td>
<td>8/100%</td>
<td>1/100%</td>
<td>10/100%</td>
<td>2/100%</td>
<td>1/100%</td>
<td>100%</td>
<td>91%</td>
</tr>
<tr>
<td>Greenbrier</td>
<td>S</td>
<td>5%</td>
<td>17/88%</td>
<td>15/94%</td>
<td>2/50%</td>
<td>27/37%</td>
<td>10/90%</td>
<td>9/100%</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>

Outbreak Investigation for Local Health Administrators
Legal Basis for Outbreak Investigation

64CSR7-7.1 Outbreaks are immediately reportable regardless of setting

64CSR7-7.2 ...Local Health Officer ... shall notify the Bureau immediately ...

64CSR7-7.3 ... Local Health Officer shall collaborate in investigation of the outbreak or cluster ...
Legal Basis for Outbreak Investigation

64CSR7-7.4 (outlines the process for outbreak investigation)

64CSR7-7.5 (epidemiological studies)

64CSR7-7.6 (laboratory studies)

64CSR7-7.7 (confidentiality protections for individuals, facilities, restaurants, etc.)
64CSR7-7.8 (complaint to OHFLAC or licensing board IF ongoing risk to public health AND failure to take corrective action)

64CSR7-7.9 (patient notification of potential bloodborne pathogen exposure)
General Outbreak Investigation / Notification Protocol

This protocol addresses outbreaks that are not linked to healthcare facilities such as hospitals, long-term care facilities, etc.). For healthcare-associated outbreaks please see http://www.dhhr.wv.gov/oeps/disease/hai/documents/hai-protocol.pdf.

Definition of an ‘Outbreak’

1. **Outbreaks** are defined as an increase in the number of cases of a disease over and above the expected number of cases.

2. **Definitions of common community-associated outbreaks**
   - **An influenza or influenza-like illness (ILI) outbreak** is defined as
     - Three or more cases of influenza-like illness in a congregate setting within a 3-day period (e.g., daycare, sports team, etc.), or
     - Two or more laboratory-confirmed cases of influenza within a 3-day period in a congregate setting (e.g., classroom, daycare), or
     - Increased absenteeism in association with ILI and/or laboratory confirmed influenza (e.g., schools, workplaces).
   - **A foodborne disease outbreak** is defined as two or more persons who experience a similar illness after ingestion of a common food. Please note two exceptions: one case of botulism or chemical poisoning constitutes an outbreak.
   - **A waterborne disease outbreak** is defined as two or more persons who
Outbreak Toolkits

http://www.dhhr.wv.gov/oeps/disease/ob/Pages/OutbreakToolkits.aspx
Confirmed Outbreaks or Clusters, West Virginia, 2001 - 2014 (n=1217)

Number of Confirmed Outbreaks and Clusters

Year of Report


http://www.dhhr.wv.gov/oeps/disease/ob/Pages/default.aspx
### Outbreak Data (2)

<table>
<thead>
<tr>
<th>Outbreak Type</th>
<th>Number of Outbreaks n=186</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enteric</td>
<td>71</td>
<td>38</td>
</tr>
<tr>
<td>Respiratory</td>
<td>65</td>
<td>35</td>
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<tr>
<td>Rash</td>
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<td>21</td>
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<td>MDROs</td>
<td>9</td>
<td>5</td>
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<tr>
<td>Other</td>
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[http://www.dhhr.wv.gov/oeps/disease/ob/Pages/default.aspx](http://www.dhhr.wv.gov/oeps/disease/ob/Pages/default.aspx)
### Outbreak Performance Measures

#### Evaluation of 2014 Surveillance Data Indicators in WVEJIS

<table>
<thead>
<tr>
<th>County</th>
<th>Region</th>
<th>Lost to follow-up</th>
<th>Demographic information complete</th>
<th>Risk Factor information complete</th>
<th><strong>Vaccine</strong> information complete</th>
<th>Reporting to CDC</th>
<th>Outbreak (OB)</th>
<th>OB with Rep. test</th>
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Conclusions and Recommendations
Staffing and Funding

1. Staff primary responsibility and backup
   a. Disease investigation
   b. Outbreak team
   c. Outreach and communication with reporting sources
   d. 24/7/365 on-call

2. Call for reinforcements
   a. Regional epidemiologist
   b. DIDE: (800) 423-1271, extension 1
      (answering service: (304) 925-9946)
Staffing and Funding (2)

3. Training and support
   a. Mileage
   b. Training – protected time and expenses
   c. Phone, FAX, email and internet access
   d. Printing expenses

4. Laboratory support
   a. Stock unexpired collection kits
      i. Respiratory virus testing
      ii. Stool testing
   b. Reserve funding for shipping
Upcoming Training

• Public Health Symposium (Office of Epidemiology and Prevention Services)
  • November 19-20, 2015
  • ‘Best Outbreak’ competition
• Hepatitis regional training ... 2015-2016
• Foodborne outbreak training
  • Regional, TBD, 2016
• Lyme disease training, TBD, 2016
• VPD training, statewide, TBD, 2016