

2014 Infectious Disease Surveillance
Data Evaluation

**COMPLETENESS
AND
TIMELINESS**

Division of Infectious Disease Epidemiology
Revised July 16, 2015

Objectives of disease surveillance evaluation:

- **Improve data quality**
- **Share data with partners and stakeholders**
- **Identify areas for improvement**
- **Comply with funding requirements (federal and state)**

Background

- **WVEDSS experienced challenges in the past**
- **2015 – database stable and accessible**
- **2014 – establish baseline**

Methods

Data Source:

- **WVEDSS**

Parameters:

- **Selected diseases**
- **MMWR 2014**

Analysis Tool:

- **Microsoft Excel**

Infectious Disease	Completeness of disease data	Timeliness of disease report	Timeliness of public health action
VACCINE-PREVENTABLE DISEASES			
Invasive Hemophilus influenza disease	YES	YES	N/A
Measles	YES	YES	YES
Invasive pneumococcal infection	YES	YES	N/A
Pertussis	YES	YES	YES
Invasive meningococcal disease	YES	YES	YES
Mumps	YES	YES	YES
VIRAL HEPATITIS			
Hepatitis B, Acute	YES	YES	YES
Hepatitis C, Acute	YES	YES	N/A
FOOD and WATERBORNE DISEASES			
Botulism	YES	YES	YES
Hepatitis A	YES	YES	YES
STEC	YES	YES	YES
Campylobacteriosis	YES	YES	N/A
Giardiasis	YES	YES	N/A
Salmonellosis	YES	YES	N/A
Shigellosis	YES	YES	N/A
ZOOBOTIC DISEASES			
Lyme Disease	YES	N/A	N/A
LaCrosse Encephalitis	YES	N/A	N/A
Tularemia	YES	YES	YES

Methods

Activity	Indicator	Target
Investigate and respond to reports of reportable infectious disease conditions according to the Reportable Disease Rule (WV 64 CSR-7) and disease protocol manual	Proportion of disease investigations that were lost to follow-up	TBD
	Proportion of disease cases reported to WVEDSS from January 1 to December 31 of the previous year with complete demographic data	100%
	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	TBD
	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	100%
Submit reports in WVEDSS	Proportion of disease investigations submitted to CDC within 30 days of report	TBD
Educate community partners to recognize and report outbreaks and share the reportable disease rule	Number of outbreaks reported from January 1 to December 31 of the previous year	TBD
LHD reporting outbreaks to DIDE within 60 minutes	Proportion of outbreaks reported within 1 hour of notification from January 1 to December 31 of the previous year	90%
LHDs investigate outbreaks and prepare a written report at the outbreak completion	Proportion of outbreaks with an outbreak report from January 1 to December 31 of the previous year	90%
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%

Evaluate completeness of demographic information

- A COMPLETE case report (confirmed, probable, suspect) must include the following 12 pieces 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*)
 - 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
- PHA (Public Health Action) 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.

Methodology

Summarize data by jurisdiction (region and county)

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WEST VIRGINIA

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

Last Updated: Nov. 2014

Results by Region

Completeness of demographic data and timeliness of report of selected conditions
January 01 to December 31, 2014

Region	Completeness		Time to Report		Time to Close		Public Health Action Time	
	# of Cases	Percent Complete	# of Cases	Percent Timely	# of Cases	Percent Timely	# of Cases	Percent Timely
Central	221	83%	312	67%	298	76%	71	17%
Eastern	351	70%	518	80%	242	70%	29	24%
Northeastern	135	75%	187	71%	148	80%	17	47%
Northwestern	158	80%	219	74%	189	69%	26	38%
Southern	254	85%	394	62%	365	62%	67	18%
Western	191	92%	294	61%	286	41%	43	16%
Statewide	1310*	80%	1924	70%	1528	64%	253	22%
Based on:	All Cases		All Investigations including Not a Case		All Investigations except Lyme, La Crosse		All Cases requiring Public Health Action	

* Represents 72% of cases reported in WVEDSS, excluding past/present hepatitis C.

County-level data for each region are shown on the following slides.

Central Region

Central

Jurisdiction	Completeness		Time to Report		Time to Close		Public Health Action Time	
	# of Cases	Percent Complete	# of Cases	Percent Timely	# of Cases	Percent Timely	# of Cases	Percent Timely
Braxton,WV	7	43%	9	89%	7	14%	2	0%
Kanawha,WV	149	87%	216	66%	211	81%	48	19%
Lewis,WV	5	0%	7	57%	6	17%		
Putnam,WV	39	85%	50	68%	49	80%	16	6%
Upshur,WV	17	82%	24	83%	19	63%	4	50%
Webster,WV	4	75%	6	17%	6	33%	1	0%
Statewide	1310	80%	1924	70%	1528	64%	253	22%
Based on:	All Cases		All Investigations including Not a Case		All Investigations except Lyme, La Crosse		All Cases requiring Public Health Action	

Eastern Region

Eastern

	Completeness		Time to Report		Time to Close		Public Health Action Time	
Jurisdiction	# of Cases	Percent Complete	# of Cases	Percent Timely	# of Cases	Percent Timely	# of Cases	Percent Timely
Berkeley,WV	133	66%	194	77%	107	72%	12	0%
Grant,WV	8	100%	11	73%	10	100%	3	100%
Hampshire,WV	46	67%	59	78%	21	95%	1	0%
Hardy,WV	19	89%	22	64%	18	89%	3	0%
Jefferson,WV	64	70%	125	87%	33	30%	7	29%
Mineral,WV	22	86%	31	84%	16	75%	1	0%
Morgan,WV	26	46%	36	89%	5	80%		
Pendleton,WV	8	75%	9	100%	7	86%		
Pocahontas,WV	6	100%	6	50%	4	100%	1	100%
Randolph,WV	15	67%	20	80%	17	59%	1	100%
Tucker,WV	4	75%	5	60%	4	0%		
Statewide	1310	80%	1924	70%	1528	64%	253	22%
Based on:	All Cases		All Investigations including Not a Case		All Investigations except Lyme, La Crosse		All Cases requiring Public Health Action	

Northeastern Region

Northeastern

Jurisdiction	Completeness		Time to Report		Time to Close		Public Health Action Time	
	# of Cases	Percent Complete	# of Cases	Percent Timely	# of Cases	Percent Timely	# of Cases	Percent Timely
Barbour,WV	4	100%	5	100%	4	50%	1	0%
Doddridge,WV	6	50%	10	80%	9	56%	3	100%
Harrison,WV	34	88%	48	63%	36	83%	1	0%
Marion,WV	16	63%	20	55%	16	63%	2	50%
Monongalia,WV	46	74%	65	72%	51	84%	6	33%
Preston,WV	24	75%	30	80%	23	96%	4	50%
Taylor,WV	5	40%	9	89%	9	67%		
Statewide	1310	80%	1924	70%	1528	64%	253	22%
Based on:	All Cases		All Investigations including Not a Case		All Investigations except Lyme, La Crosse		All Cases requiring Public Health Action	

Northwestern Region

Northwestern

Jurisdiction	Completeness		Time to Report		Time to Close		Public Health Action Time	
	# of Cases	Percent Complete	# of Cases	Percent Timely	# of Cases	Percent Timely	# of Cases	Percent Timely
Brooke,WV	9	78%	11	64%	10	70%	2	0%
Calhoun,WV	3	67%	4	100%	3	67%		
Clay,WV	6	50%	8	63%	7	86%		
Gilmer,WV	4	50%	5	80%	5	20%		
Hancock,WV	20	55%	27	78%	23	87%		
Marshall,WV	15	73%	20	65%	17	0%	2	100%
Ohio,WV	19	79%	26	92%	23	83%	1	0%
Pleasants,WV	5	100%	6	50%	5	80%	1	0%
Ritchie,WV	2	0%	6	67%	4	100%	1	0%
Roane,WV	8	100%	12	58%	11	55%	1	0%
Tyler,WV	7	100%	12	75%	10	80%	3	67%
Wetzel,WV	12	92%	13	77%	13	46%	2	0%
Wirt,WV	3	67%	6	67%	5	80%		
Wood,WV	45	93%	63	73%	53	83%	13	46%
Statewide	1310	80%	1924	70%	1528	64%	253	22%
Based on:	All Cases		All Investigations including Not a Case		All Investigations except Lyme, La Crosse		All Cases requiring Public Health Action	

Southern Region

Southern

Jurisdiction	Completeness		Time to Report		Time to Close		Public Health Action Time	
	# of Cases	Percent Complete	# of Cases	Percent Timely	# of Cases	Percent Timely	# of Cases	Percent Timely
Fayette,WV	23	91%	34	62%	31	16%	8	38%
Greenbrier,WV	17	88%	31	61%	27	37%	4	25%
McDowell,WV	19	68%	27	48%	23	22%	7	0%
Mercer,WV	69	88%	97	84%	90	81%	10	30%
Monroe,WV	10	90%	16	81%	13	69%	2	100%
Nicholas,WV	10	30%	16	38%	15	27%	2	0%
Raleigh,WV	84	94%	131	45%	127	78%	27	11%
Summers,WV	9	56%	16	81%	15	47%	4	0%
Wyoming,WV	13	85%	26	69%	24	54%	3	0%
Statewide	1310	80%	1924	70%	1528	64%	253	22%
Based on:	All Cases		All Investigations including Not a Case		All Investigations except Lyme, La Crosse		All Cases requiring Public Health Action	

Western Region

Western

Jurisdiction	Completeness		Time to Report		Time to Close		Public Health Action Time	
	# of Cases	Percent Complete	# of Cases	Percent Timely	# of Cases	Percent Timely	# of Cases	Percent Timely
Boone,WV	20	85%	31	61%	31	42%	4	0%
Cabell,WV	45	89%	78	58%	74	15%	11	9%
Jackson,WV	14	93%	16	69%	16	31%	2	50%
Lincoln,WV	18	89%	29	41%	28	36%	5	40%
Logan,WV	39	100%	58	74%	56	71%	5	20%
Mason,WV	13	77%	23	61%	24	50%	2	50%
Mingo,WV	21	95%	28	54%	27	22%	9	0%
Wayne,WV	21	100%	31	68%	30	63%	5	20%
Statewide	1310	80%	1924	70%	1528	64%	253	22%
Based on:	All Cases		All Investigations including Not a Case		All Investigations except Lyme, La Crosse		All Cases requiring Public Health Action	

Limitations

- **Data are current as of July 16, 2015**
- **Conditions are often underreported and disease counts in this presentation may not represent the true burden of disease in West Virginia**
- **Findings in this report reflect the efforts of healthcare providers, laboratories, and local and state public health offices**
- **Counties under each region were realigned in the fall of 2014 (from 8 to 6 regions)**

Evaluation of 2014 Surveillance Data Indicators in WVEDSS

County	Region	*Lost to follow-up		Demographic information complete		Risk factor information complete		**Vaccine information complete		Reporting to CDC		Outbreak (OB) Reporting			OB with Resp test		OB with FB test		ILI SP report, target=50%
		count	%	total #	% complete	count	%	count	%	total # cases	% timely (reported within 30 days)	total #	% reporting within 1 hour of notification	% with report completed	count	%	count	%	
Barbour	NE	0	0%	4	100%	3	75%	1	100%	4	50%	0	0%	0				100%	
Berkeley	E	15	19%	133	66%	69	77%	28	80%	107	72%	2	0%	100	1/1	100%		94%	
Boone	W	3	14%	20	85%	14	70%	8	89%	31	42%	1	100%	100	1/1	100%		97%	
Braxton	C	0	0%	7	43%	4	67%	1	33%	7	14%	0	0%	0				0%	
Brooke	NW	1	17%	9	78%	8	89%	4	100%	10	70%	3	100%	100	1/1	100%		97%	
Cabell	W	15	31%	45	89%	36	84%	25	76%	74	15%	4	75%	100	2/2	100%		100%	
Calhoun	NW	0	0%	3	67%	3	100%	2	100%	3	67%	1	100%	100	1/1	100%		106%	
Clay	NW	2	29%	6	50%	3	60%	0	0%	7	86%	1	100%	100				61%	
Doddridge	NE	1	17%	6	50%	4	100%	3	100%	9	56%	0	0%	0				0%	
Fayette	S	1	4%	23	91%	13	57%	9	90%	31	16%	3	67%	67	0/1	0%		0%	
Gilmer	NW	0	0%	4	50%	4	100%	1	100%	5	20%	1	0%	100				0%	
Grant	E	1	13%	8	100%	8	100%	1	100%	10	100%	2	100%	100	1/1	100%		91%	
Greenbrier	S	1	5%	17	88%	15	94%	2	50%	27	37%	10	90%	100	9/10	90%		100%	
Hampshire	E	3	21%	46	67%	14	78%	3	50%	21	95%	3	33%	100	1/1	100%		100%	
Hancock	NW	5	29%	20	55%	15	83%	6	100%	23	87%	2	50%	100	1/1	100%		42%	
Hardy	E	3	25%	19	89%	13	76%	3	60%	18	89%	3	67%	100	1/1	100%		0%	
Harrison	NE	4	21%	34	88%	25	78%	12	80%	36	83%	2	100%	100				0%	
Jackson	W	1	8%	14	93%	11	79%	2	50%	16	31%	4	50%	100	1/1	100%	1/2	50%	100%
Jefferson	E	7	30%	64	70%	16	64%	8	67%	33	30%	3	67%	100	1/1	100%		73%	
Kanawha	C	7	5%	149	87%	134	96%	87	94%	211	81%	35	100%	97	15/15	100%		6%	
Lewis	C	0	0%	5	0%	3	60%	1	33%	6	17%	0	0%	0				0%	
Lincoln	W	13	62%	18	89%	13	76%	7	78%	28	36%	2	50%	50				91%	
Logan	W	6	13%	39	100%	34	87%	13	93%	56	71%	1	0%	100				94%	
Marion	NE	2	20%	16	63%	13	81%	6	75%	16	63%	5	80%	100				100%	
Marshall	NW	1	13%	15	73%	9	69%	4	67%	17	0%	2	100%	100				0%	
Mason	W	2	13%	13	77%	11	85%	7	78%	24	50%	0		0				58%	

Evaluation of 2014 Surveillance Data Indicators in WVEDSS

McDowell	S	2	11%	19	68%	15	83%	9	90%	23	22%	0	0				0%	
Mercer	S	3	4%	69	88%	58	91%	21	95%	90	81%	13	77%	100	5/5	100%	97%	
Mineral	E	3	27%	22	86%	14	88%	5	100%	16	75%	1	0%	100		0/1	0%	100%
Mingo	W	8	38%	21	95%	19	90%	11	92%	27	22%	0	0				42%	
Monongalia	NE	3	8%	46	74%	39	91%	12	92%	51	84%	13	100%	100	3/3	100%	61%	
Monroe	S	1	8%	10	90%	6	86%	0	0%	13	69%	1	100%	100			100%	
Morgan	E	1	20%	26	46%	2	40%	0	0%	5	80%	0	0				70%	
Nicholas	S	2	25%	10	30%	8	80%	4	67%	15	27%	1	100%	100			91%	
Ohio	NW	0	0%	19	79%	17	94%	7	78%	23	83%	11	100%	100	3/3	75%	97%	
Pendleton	E	0	0%	8	75%	6	100%	1	100%	7	86%	0	0%	0			0%	
Pleasants	NW	0	0%	5	100%	5	100%	1	100%	5	80%	1	100%	100	1/1	100%	0%	
Pocahontas	E	0	0%	6	100%	3	75%	0	0%	4	100%	0	0%	0			0%	
Preston	NE	0	0%	24	75%	14	64%	5	83%	23	96%	2	50%	100			64%	
Putnam	C	4	10%	39	85%	38	95%	18	82%	49	80%	5	100%	100	3/3	100%	73%	
Raleigh	S	10	10%	84	94%	72	91%	36	240%	127	78%	6	83%	100	1/1	100%	100%	
Randolph	E	1	10%	15	67%	10	77%	3	11%	17	59%	3	100%	100	1/1	100%	100%	
Ritchie	NW	0	0%	2	0%	1	50%	2	100%	4	100%	3	100%	67	1/1	100%	52%	
Roane	NW	3	33%	8	100%	5	71%	2	67%	11	55%	2	100%	100	1/1	100%	21%	
Summers	S	0	0%	9	56%	7	78%	5	100%	15	47%	1	100%	100			88%	
Taylor	NE	1	13%	5	40%	5	100%	0	0%	9	67%	0	0%	0			100%	
Tucker	E	0	0%	4	75%	2	67%	0	0%	4	0%	0	0%	0			70%	
Tyler	NW	0	0%	7	100%	6	100%	2	100%	10	80%	3	33%	100	2/2	100%	58%	
Upshur	C	4	22%	17	82%	14	82%	1	100%	19	63%	3	100%	100	1/1	100%	100%	
Wayne	W	1	5%	21	100%	20	95%	8	89%	30	63%	2	100%	100	1/1	100%	88%	
Webster	C	2	50%	4	75%	2	40%	2	67%	6	33%	0	0%	0			100%	
Wetzel	NW	2	20%	12	92%	12	92%	6	100%	13	46%	1	100%	100			58%	
Wirt	NW	0	0%	3	67%	3	100%	3	100%	5	80%	1	100%	0			100%	
Wood	NW	8	24%	45	93%	32	80%	13	81%	53	83%	18	100%	100	8/8	100%	88%	
Wyoming	S	4	18%	13	85%	10	83%	2	100%	24	54%	0	0%	0			79%	

*% Lost to follow-up (LTF) = % with 'yes' response to LTF question for all investigations of acute hep b, acute hep c, food and waterborne conditions.

**Vaccine information – for selected vaccine-preventable conditions, including hepatitis B

Cells in grey = no data

For specifics about each indicator, please see evaluations found at www.dide.wv.gov

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)

<u>Indicator</u>	West Virginia	Southern	Western	Eastern	Northeastern	Northwestern	Central
Total Cases	186	50	35	15	10	15	61
<u>Demographic</u>							
County	100%	100%	100%	100%	100%	100%	100%
Age	100%	100%	100%	100%	100%	100%	100%
Gender	100%	100%	100%	100%	100%	100%	100%
Ethnicity	82%	84%	91%	80%	50%	73%	82%
Race	92%	98%	94%	100%	60%	87%	90%
<u>Clinical</u>							
Symptomatic (yes)	100%	100%	100%	100%	100%	100%	100%
Jaundice	100%	100%	100%	100%	100%	100%	100%
Was the patient a contact of a person with confirmed or suspected acute or chronic HBV infection ?	94%	100%	86%	87%	90%	80%	98%
Was the patient EVER treated for STD ?	94%	100%	86%	89%	90%	80%	98%
Did the patient inject drugs not prescribed by a doctor?	94%	96%	86%	87%	90%	93%	98%
Did the patient use street drugs but not inject?	94%	96%	86%	87%	90%	93%	98%

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)

Indicator	West Virginia	Southern	Western	Eastern	Northeastern	Northwestern	Central
Did the patient undergo hemodialysis ?	94%	100%	86%	87%	90%	80%	98%
Did the patient have an accidental stick or puncture with a needle or other contaminated object?	94%	100%	86%	87%	90%	80%	98%
Did the patient receive blood or blood products (transfusion) ?	94%	100%	86%	87%	90%	80%	98%
Did the patient receive any IV infusion and/or injection in the outpatient setting ?	94%	100%	86%	87%	90%	80%	98%
Did the patient have other exposure to someone else's blood ?	94%	100%	86%	87%	90%	80%	98%
Was the patient employed in a medical or dental field involving direct contact with human blood?	93%	98%	86%	87%	90%	80%	98%
Was the patient employed as a public safety worker having direct contact with human blood?	94%	100%	86%	87%	90%	80%	98%
Did the patient receive a tattoo ?	94%	100%	86%	87%	90%	80%	98%

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)

Indicator	West Virginia	Southern	Western	Eastern	Northeastern	Northwestern	Central
Did the patient have any part of their body pierced (other than ear)?	94%	100%	86%	87%	90%	80%	98%
Did the patient have dental work or oral surgery ?	94%	100%	86%	87%	90%	80%	98%
Did the patient have surgery ?	93%	98%	86%	87%	90%	80%	98%
Was the patient hospitalized ?	93%	98%	86%	87%	90%	80%	98%
Was the patient a resident of long-term care facility ?	94%	98%	86%	87%	90%	93%	98%
Was the patient incarcerated for longer than 24 hours ?	94%	98%	86%	87%	90%	87%	98%
During his/her lifetime, was the patient EVER incarcerated for longer than 6 months ?	92%	98%	86%	87%	80%	80%	98%
Lost to follow up (y/n answer)?	99%	100%	97%	100%	100%	100%	100%

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)

Indicator	West Virginia	Southern	Western	Eastern	Northeastern	Northwestern	Central
Education provided?	92%	98%	86%	87%	90%	100%	98%
Percentage of Acute Hepatitis B who are lost to follow up							
Lost to follow up...? (answered yes)	17% 32/186	10% 5/50	37% 13/35	33% 5/15	0% 0/10	27% 4/15	8% 5/61

Strengths

- Implementation of documentation of education provided to patient within case investigation.
- Proportion of cases and reported risk factors corresponds to regions of WV that report higher levels of IVDU.

Limitations

- West Virginia has transitioned from eight regions to six regions, therefore reassigning new counties to Regional Epidemiologists.
- Many patients can be difficult to locate due to changing contact information.
- Several patients do not trust interviewer to provide information such as illegal activity to Local Health Department.

Recommendations

- A differentiation between incomplete responses, unknown, and those responses where the local health department is unable to communicate with the patient.
- More extensive documentation when a patient is lost to follow up and why.
- State resources available to assist Regions with case investigations include: Vital Statistics, Disease Investigation Specialists, Hepatitis B Epidemiologist, Perinatal Hepatitis B Program, and Local Hospital Electronic Medical Records Systems access.

Influenza Sentinel Providers Reporting Record 2014-15 Season, West Virginia

County	Sentinel Provider ID	% Weeks Reported	# Weeks Reported
Barbour	54145	100.0	33
Berkeley	54169	93.9	31
Boone	54205	97.0	32
Brooke	54206	93.9	31
Cabell	54130	100.0	33
Calhoun	54273	100.0	33
Calhoun	54274	100.0	33
Clay	54149	60.6	20
Doddridge			
Fayette			
Gilmer			
Grant	54275	90.9	30
Greenbrier	54219	100.0	33
Greenbrier	54262	3.0	1
Hampshire	54070	100.0	33
Hancock	54222	42.4	14
Hardy			
Harrison			
Jackson	54144	100.0	33
Jefferson	54164	72.7	24
Kanawha	54292	6.1	2
Lewis			
Lincoln	54264	3.0	1
Lincoln	54266	90.9	30
Logan	54267	93.9	31
Marion	54080	100.0	33
Marshall			
Mason	54246	57.6	19
McDowell			
Mercer	54220	97.0	32
Mercer	54293	90.9	30
Mineral	54198	100.0	33
Mingo	54279	42.4	14
Monongalia	54237	60.6	20
Monroe	54165	100.0	33
Morgan	54202	69.7	23
Nicholas	54224	90.9	30
Ohio	54281	97.0	32
Pendleton			
Pleasants			

Pocahontas			
Preston	54108	63.6	21
Putnam	54270	72.7	24
Raleigh	54023	100.0	33
Raleigh	54227	100.0	33
Randolph	54259	100.0	33
Ritchie	54283	51.5	17
Roane	54288	21.2	7
Summers	54284	87.9	29
Taylor	54271	100.0	33
Tucker	54285	69.7	23
Upshur	54231	100.0	33
Wayne	54286	87.9	29
Webster	54287	63.6	21
Webster	54291	100.0	33
Wetzel-Tyler	54217	57.6	19
Wirt	54132	100.0	33
Wood	54100	87.9	29
Wyoming	54250	63.6	21
Wyoming	54272	78.8	26

Surveillance Indicator Evaluation of Selected Food and Waterborne Diseases

Evaluated the completeness of cases Salmonellosis, Campylobacteriosis, Shiga toxin-producing *E.coli* and Giardiasis reported during MMWR year 2014.

For evaluation of Hospitalization and Death questions, “Unknown” was considered a missing response.

For evaluation of risk factor questions, “Unknown” was considered a completed response.

The risk factor questions that were included to determine if a complete risk factor investigation was completed are detailed below for each disease.

Salmonellosis

1. Eat fresh shell eggs?
2. Eat raw eggs?
3. Eat raw or undercooked chicken, turkey or other fowl?
4. Eat raw fruits or vegetables?
5. Contact with birds, poultry, farm animals or reptiles?
6. Is case a member of a high risk occupation?

Campylobacteriosis

1. Eat undercooked chicken, turkey or other fowl?
2. Eat or drink raw or unpasteurized milk?
3. Eat unpasteurized dairy products?
4. Drink untreated/unchlorinated water?
5. Contact with poultry?
6. Is case a member of a high risk occupation?

Shiga toxin-producing E. coli

1. Eat raw or undercooked hamburger, red meat, or pork?
2. Eat or drink raw or unpasteurized milk?
3. Eat pasteurized dairy products?
4. Eat raw fruits or vegetables
5. Work with animals or animal products?
6. Drink untreated/unchlorinated water?
7. Visit a petting zoo, farm or pet shop?
8. Hike, camp, fish or swim?
9. Is case a member of a high risk occupation?

Giardiasis

1. Drink untreated/unchlorinated water?
2. Hike, camp, fish or swim?
3. Other recreational water exposure?
4. Travel to another state or country?

For evaluation of Lost to Follow Up, all investigations (including not a case) were included. An investigation was counted as lost to follow up when the question in WVEDSS had a “Yes” response.

SURVEILLANCE INDICATOR EVALUATION-COMPLETENESS OF CASES REPORTED 2014

	Salmonellosis			
	Number of Cases	Complete Risk Factor Investigation	Hospitalization	Death
STATEWIDE	180	71%	98%	97%
CENTRAL REGION	29	83%	97%	97%
Braxton	2	100%	100%	100%
Kanawha	14	100%	100%	100%
Lewis	1	0%	100%	100%
Putnam	8	75%	100%	100%
Upshur	3	67%	100%	100%
Webster	1	0%	0%	0%
EASTERN REGION	39	46%	95%	95%
Berkeley	20	45%	95%	95%
Grant	0			
Hampshire	2	50%	100%	100%
Hardy	2	100%	100%	100%
Jefferson	7	29%	100%	100%
Mineral	1	0%	100%	100%
Morgan	2	0%	100%	100%
Pendleton	1	100%	100%	100%
Pocahontas	0			
Randolph	3	67%	67%	67%
Tucker	1	100%	100%	100%
NORTHEASTERN REGION	25	72%	100%	96%
Barbour	1	100%	100%	100%
Doddridge	0			
Harrison	5	40%	100%	80%
Marion	5	80%	100%	100%
Monongalia	7	100%	100%	100%
Preston	5	40%	100%	100%
Taylor	2	100%	100%	100%
NORTHWESTERN REGION	33	82%	97%	97%
Brooke	2	50%	100%	100%
Calhoun	0			
Clay	2	50%	100%	100%
Gilmer	3	100%	100%	100%
Hancock	4	75%	100%	100%
Marshall	7	86%	86%	86%
Ohio	5	100%	100%	100%
Pleasants	1	100%	100%	100%
Ritchie	0			
Roane	1	100%	100%	100%
Tyler	1	100%	100%	100%
Wetzel	2	100%	100%	100%
Wirt	0			
Wood	5	60%	100%	100%

SURVEILLANCE INDICATOR EVALUATION-COMPLETENESS OF CASES REPORTED 2014

Salmonellosis				
	Number of Cases	Complete Risk Factor Investigation	Hospitalization	Death

SOUTHERN REGION	32	72%	100%	100%
Fayette	3	0%	100%	100%
Greenbrier	3	100%	100%	100%
McDowell	4	75%	100%	100%
Mercer	6	67%	100%	100%
Monroe	2	100%	100%	100%
Nicholas	0			
Raleigh	9	89%	100%	100%
Summers	2	50%	100%	100%
Wyoming	3	67%	100%	100%
WESTERN REGION	22	77%	100%	100%
Boone	5	80%	100%	100%
Cabell	2	50%	100%	100%
Jackson	5	80%	100%	100%
Lincoln	1	0%	100%	100%
Logan	4	75%	100%	100%
Mason	0			
Mingo	2	100%	100%	100%
Wayne	3	100%	100%	100%

SURVEILLANCE INDICATOR EVALUATION -COMPLETENESS OF CASES REPORTED 2014

	Campylobacteriosis			
	Number of Cases	Complete Risk Factor Investigation	Hospitalization	Death
STATEWIDE	271	83%	98%	97%
CENTRAL REGION	44	91%	100%	98%
Braxton				
Kanawha	27	89%	100%	96%
Lewis	1	100%	100%	100%
Putnam	7	100%	100%	100%
Upshur	9	89%	100%	100%
Webster	0			
EASTERN REGION	68	79%	94%	93%
Berkeley	30	87%	97%	97%
Grant	4	100%	100%	100%
Hampshire	7	71%	100%	100%
Hardy	9	56%	78%	78%
Jefferson	2	0%	50%	50%
Mineral	6	83%	100%	100%
Morgan	2	50%	100%	50%
Pendleton	3	100%	100%	100%
Pocahontas	3	100%	100%	100%
Randolph	2	100%	100%	100%
Tucker	0			
NORTHEASTERN REGION	30	83%	100%	97%
Barbour	1	100%	100%	100%
Doddridge	0			
Harrison	3	67%	100%	100%
Marion	1	100%	100%	100%
Monongalia	17	94%	100%	94%
Preston	8	63%	100%	100%
Taylor				
NORTHWESTERN REGION	33	82%	97%	100%
Brooke	2	100%	100%	100%
Calhoun	0			
Clay	1	0%	100%	100%
Gilmer	0			
Hancock	7	71%	86%	100%
Marshall	0			
Ohio	3	100%	100%	100%
Pleasants	3	100%	100%	100%
Ritchie	0			
Roane	2	50%	100%	100%
Tyler	1	100%	100%	100%
Wetzel	3	100%	100%	100%
Wirt	0			
Wood	11	82%	100%	100%

SURVEILLANCE INDICATOR EVALUATION -COMPLETENESS OF CASES REPORTED 2014

Campylobacteriosis				
	Number of Cases	Complete Risk Factor Investigation	Hospitalization	Death

SOUTHERN REGION	55	82%	98%	98%
Fayette	6	0%	100%	100%
Greenbrier	5	100%	100%	100%
McDowell	3	100%	100%	100%
Mercer	20	95%	95%	100%
Monroe	3	67%	100%	100%
Nicholas	3	67%	100%	67%
Raleigh	12	92%	100%	100%
Summers	0			
Wyoming	3	100%	100%	100%
WESTERN REGION	41	83%	100%	98%
Boone	5	80%	100%	100%
Cabell	4	100%	100%	100%
Jackson	3	67%	100%	100%
Lincoln	2	0%	100%	100%
Logan	12	83%	100%	100%
Mason	3	100%	100%	100%
Mingo	5	80%	100%	80%
Wayne	7	100%	100%	100%

SURVEILLANCE INDICATOR EVALUATION-COMPLETENESS OF CASES REPORTED 2014

	Shiga Toxin-producing <i>E.coli</i>				
	Number of Cases	Complete Risk Factor Investigation	Hospitalization	Death	PHA-Disease Education
STATEWIDE	33	91%	85%	97%	88%
CENTRAL REGION	4	75%	100%	100%	50%
Braxton	0				
Kanawha	0				
Lewis	0				
Putnam	0				
Upshur	4	75%	100%	100%	
Webster	0				
EASTERN REGION	6	83%	100%	100%	100%
Berkeley	0				
Grant	3	100%	100%	100%	
Hampshire	0				
Hardy	0				
Jefferson	1	100%	100%	100%	
Mineral	1	100%	100%	100%	
Morgan	0				
Pendleton	0				
Pocahontas	1	0%	100%	100%	
Randolph	0				
Tucker	0				
NORTHEASTERN REGION	4	100%	100%	100%	100%
Barbour	0				
Doddridge	0				
Harrison	1	100%	100%	100%	
Marion	0				
Monongalia	2	100%	100%	100%	
Preston	1	100%	100%	100%	
Taylor	0				
NORTHWESTERN REGION	4	100%	100%	100%	100%
Brooke	0				
Calhoun	0				
Clay	0				
Gilmer	0				
Hancock	0				
Marshall	0				
Ohio	0				
Pleasants	0				
Ritchie	0				
Roane	0				
Tyler	2	100%	100%	100%	
Wetzel	0				
Wirt	0				
Wood	2	100%	100%	100%	

SURVEILLANCE INDICATOR EVALUATION-COMPLETENESS OF CASES REPORTED 2014

Shiga Toxin-producing <i>E.coli</i>					
	Number of Cases	Complete Risk Factor Investigation	Hospitalization	Death	PHA-Disease Education
SOUTHERN REGION	12	92%	100%	92%	83%
Fayette	3	100%	100%	67%	
Greenbrier	2	100%	100%	100%	
McDowell	0				
Mercer	2	100%	100%	100%	
Monroe	2	100%	100%	100%	
Nicholas	1	100%	100%	100%	
Raleigh	0				
Summers	0				
Wyoming	2	100%	100%	100%	
WESTERN REGION	3	100%	100%	100%	100%
Boone	0				
Cabell	1	100%	100%	100%	
Jackson	1	100%	100%	100%	
Lincoln	0				
Logan	0				
Mason	0				
Mingo	0				
Wayne	1	100%	100%	100%	

SURVELLANCE INDICATOR EVALUATION-COMPLETENESS OF CASES REPORTED 2014

	Giardiasis			
	Number of Cases	Complete Risk Factor Investigation	Hospitalization	Death
STATEWIDE	66	95%	97%	92%
CENTRAL REGION	6	100%	100%	100%
Braxton	1	100%	100%	100%
Kanawha	2	100%	100%	100%
Lewis	0			
Putnam	3	100%	100%	100%
Upshur	0			
Webster	0			
EASTERN REGION	17	100%	94%	94%
Berkeley	3	100%	100%	100%
Grant	0			
Hampshire	2	100%	100%	100%
Hardy	1	100%	100%	100%
Jefferson	2	100%	50%	50%
Mineral	3	100%	100%	100%
Morgan	1	100%	100%	100%
Pendleton	1	100%	100%	100%
Pocahontas	0			
Randolph	3	100%	100%	100%
Tucker	1	100%	100%	100%
NORTHEASTERN REGION	18	89%	94%	83%
Barbour	1	100%	100%	100%
Doddridge	1	100%	100%	100%
Harrison	7	86%	100%	86%
Marion	2	100%	100%	100%
Monongalia	3	67%	67%	67%
Preston	2	100%	100%	50%
Taylor	2	100%	100%	100%
NORTHWESTERN REGION	5	100%	100%	100%
Brooke	0			
Calhoun	1	100%	100%	100%
Clay	0			
Gilmer	0			
Hancock	1	100%	100%	100%
Marshall	0			
Ohio	1	100%	100%	100%
Pleasants	0			
Ritchie	0			
Roane	0			
Tyler	0			
Wetzel	1	100%	100%	100%
Wirt	0			
Wood	1	100%	100%	100%

SURVELLANCE INDICATOR EVALUATION-COMPLETENESS OF CASES REPORTED 2014

	Giardiasis			
	Number of Cases	Complete Risk Factor Investigation	Hospitalization	Death
SOUTHERN REGION	10	100%	100%	100%
Fayette	1	100%	100%	100%
Greenbrier	1	100%	100%	100%
McDowell	1	100%	100%	100%
Mercer	3	100%	100%	100%
Monroe	0			
Nicholas	0			
Raleigh	2	100%	100%	100%
Summers	1	100%	100%	100%
Wyoming	1	100%	100%	100%
WESTERN REGION	10	90%	100%	90%
Boone	1	100%	100%	100%
Cabell	1	100%	100%	0%
Jackson	0			
Lincoln	5	100%	100%	100%
Logan	1	0%	100%	100%
Mason	0			
Mingo	1	100%	100%	100%
Wayne	1	100%	100%	100%

Cases Lost to Follow Up for Selected Foodborne Conditions*

Jurisdiction	# Cases Lost to F/U	Total investigations	Percent Lost to F/U
STATEWIDE	61	554	11%
Barbour	0	3	0%
Berkeley	6	54	11%
Boone	0	11	0%
Braxton	0	3	0%
Brooke	0	4	0%
Cabell	3	9	33%
Calhoun	0	1	0%
Clay	1	3	33%
Doddridge	0	1	0%
Fayette	0	13	0%
Gilmer	0	3	0%
Grant	0	7	0%
Greenbrier	1	11	9%
Hampshire	1	11	9%
Hancock	4	12	33%
Hardy	3	12	25%
Harrison	3	16	19%
Jackson	0	9	0%
Jefferson	4	12	33%
Kanawha	2	43	5%
Lewis	0	2	0%
Lincoln	2	8	25%
Logan	2	17	12%
Marion	2	8	25%
Marshall	1	7	14%
Mason	0	3	0%
McDowell	0	8	0%
Mercer	2	31	6%
Mineral	3	11	27%
Mingo	1	8	13%
Monongalia	3	29	10%
Monroe	0	7	0%
Morgan	1	5	20%
Nicholas	2	4	50%
Ohio	0	9	0%
Pendleton	0	5	0%
Pleasants	0	4	0%
Pocahontas	0	4	0%
Preston	0	16	0%
Putnam	1	18	6%
Raleigh	1	24	4%
Randolph	1	8	13%

Cases Lost to Follow Up for Selected Foodborne Conditions*

Jurisdiction	# Cases Lost to F/U	Total investigations	Percent Lost to F/U
Ritchie	0	0	NA
Roane	2	3	67%
Summers	0	3	0%
Taylor	1	4	25%
Tucker	0	2	0%
Tyler	0	4	0%
Upshur	3	16	19%
Wayne	0	12	0%
Webster	1	2	50%
Wetzel	0	6	0%
Wood	4	19	21%
Wyoming	0	9	0%

*Selected Conditions include: Salmonellosis, Campylobacteriosis, STEC, Giardiasis

Percentage of Vaccine Preventable Disease Cases with Complete Information — West Virginia, 2014

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

Surveillance Indicators for Confirmed/Probable* Mumps Cases (n=1)	Percent complete 2014
Name	100%
Address	100%
Gender	100%
Race	0%
Ethnicity	0%
Date of birth	100%
Date of Symptom Onset	100%
Vaccination History (yes or no answer)	100%
Hospitalization	100%
Laboratory Testing	100%
Transmission Setting	0% (Transmission setting unknown)
Epidemiologic Data – Outbreak Related	100%
Epidemiologic Data – Epi-linked to Another Case	100%
Epidemiologic Data – Contact Tracing Complete	100%

Surveillance Indicators for Confirmed/Probable H. flu Cases (n=48)	Percent complete 2014
Name	100%
Address	100%
Gender	98%
Race	90%
Ethnicity	85%
Date of birth	100%

Percentage of Vaccine Preventable Disease Cases with Complete Information — West Virginia, 2014

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

Surveillance Indicators for Confirmed/Probable H. flu Cases (n=48)	Percent complete 2014
Date of Symptom Onset	85%
Vaccination History (yes or no answer)	52%
Serotype	98%
Specimen Source	100%
Type of Infection	98%

Surveillance Indicators for Confirmed/Probable Meningococcal Cases (n=1)	Percent complete 2014
Demographics (Name, address, gender, race, ethnicity, date of birth)	100%
Date of Symptom Onset	100%
Date of Report to Public Health	100%
Vaccination History (yes or no answer)	100%
Serogroup	100%
Type of Infection	100%

Surveillance Indicators for Confirmed/Probable Pertussis Cases (n=18)	Percent complete 2014
Name	100%
Address	100%
Gender	100%
Race	94%
Ethnicity	94%
Date of Birth	100%
Date of Symptom Onset	94%

Percentage of Vaccine Preventable Disease Cases with Complete Information — West Virginia, 2014

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

Surveillance Indicators for Confirmed/Probable Pertussis Cases (n=18)	Percent complete 2014
Date of Report to Public Health	100%
Vaccination History (yes or no answer)	94%
Complications (including information on hospitalization, presence of whoop, post-tussive vomiting, and paroxysmal cough, apnea, chest x-rays for pneumonia, seizures and encephalopathy)	100%
Antibiotic Treatment	100%
Laboratory Testing	100%
Epidemiologic Data – Outbreak Related	100%
Epidemiologic Data – Epi-linked to Another Case	94%
Epidemiologic Data – Contact Tracing Complete	94%

Surveillance Indicators for Confirmed Invasive <i>S. pneumoniae</i> Cases (n= 247)	Percent complete 2014
Name	100%
Address	100%
Gender	99.5%
Race	84%
Ethnicity	84%
Date of Birth	100%
Date of Symptom Onset	92%
Date of Report to Public Health	98%
Vaccination History (yes or no answer)	87%
Type of Infection	96%
Specimen Source	99%
Underlying Medical Conditions	94%

Percentage of Vaccine Preventable Disease Cases with Complete Information — West Virginia, 2014

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

Surveillance Indicators for Confirmed Invasive <i>S. pneumoniae</i> Cases (n= 247)	Percent complete 2014
Antibiotic Sensitivity Profile	75%
Serotype	Info currently not available