WEST VIRGINIA ANNUAL OUTBREAK REPORT 2014

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

Office of Epidemiology and Prevention Services
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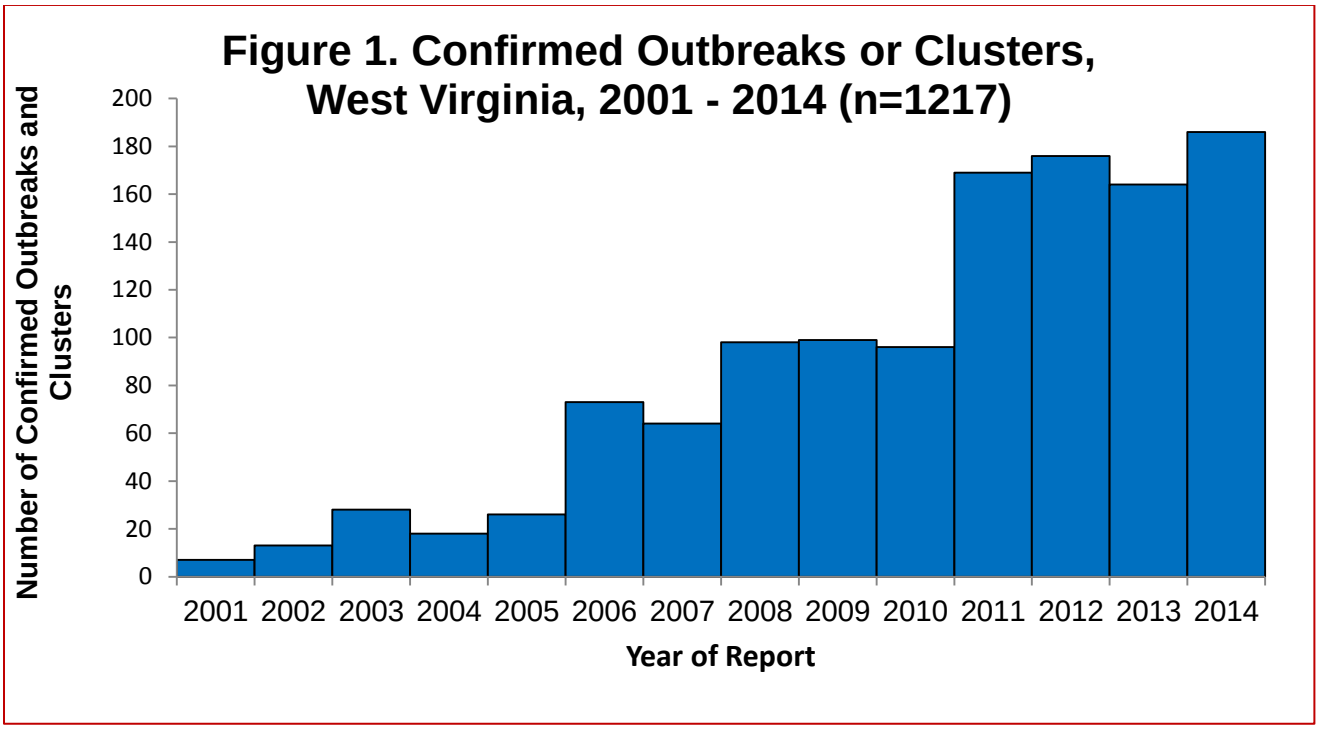
Introduction

In 2014, a total of 203 outbreaks were identified and reported to local health departments (LHDs). Of these reports, 186 (92%) were confirmed as outbreaks or clusters of disease (Appendix). LHDs investigate and report outbreaks with assistance from their regional epidemiologist and the Bureau for Public Health (BPH), Division of Infectious Disease Epidemiology (DIDE). Results of these investigations were compiled by DIDE and summarized in this report.

The total number of outbreaks reported in West Virginia has dramatically increased since 2001. In 2001, 7 confirmed outbreaks were reported. In 2013, 186 confirmed outbreaks were reported, representing a 27-fold increase (Figure 1).



Methods:

Data on outbreaks were compiled in Microsoft Excel 2010. Data collected includes information on outbreak type and setting, reporting county and region, time of reporting to LHDs and BPH, clinical diagnosis, laboratory information and specific pathogens, mode of transmission, completion of final report, and lead investigator. Data were analyzed in Epi Info (TM) 7.1.3.10.

Results:

Jurisdiction:
In 2014, 184 (99%) confirmed outbreaks were limited to West Virginia residents, and 2 (1%) outbreaks involved residents of other states. The Centers for Disease Control and Prevention (CDC) led the investigation in 1 multi-state outbreak and one other state led the investigation in the other outbreak.

Type of Outbreaks

The most common type of outbreaks involved enteric illness, followed by respiratory illness, and rash illness. Multidrug-resistant organisms (MDROs) outbreaks represented only 5% of total confirmed outbreaks (Table 1).

Table 1. Confirmed Outbreaks by Type, West Virginia, 2014

Outbreak Type	Number of Outbreaks n=186	Percent
Enteric	71	38
Respiratory	65	35
Rash	39	21
MDROs	9	5
Other	2	1

Outbreak Performance Measures

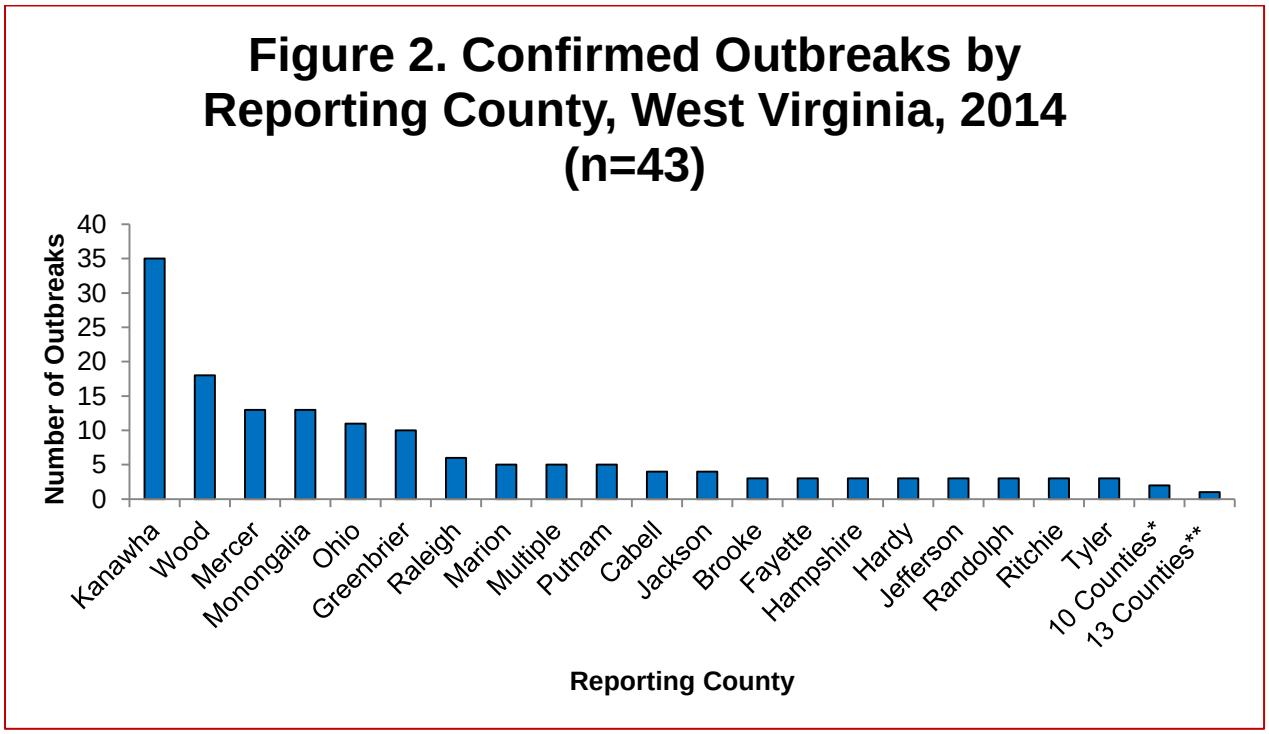
In order to improve outbreak response at the state, regional and local levels and to meet several grant requirements, DIDE has implemented outbreak performance measures. These measures include:

- Number of outbreaks reported by each county and region
- Proportion of outbreaks with complete and appropriate laboratory confirmation
- Timeliness of notification between LHDs and BPH/DIDE
- Number of final outbreak reports generated by each county

Outbreaks by Reporting Counties/Regions:

In 2014, 43 (78%) counties reported outbreaks (Table 2).

Five (5) outbreaks were multi-county outbreaks (Table 3). The highest number of outbreaks (35) was reported from Kanawha County followed by 18 from Wood County and 13 from Mercer County (Figure 2). Individual outbreaks will be reported by surveillance region rather than by reporting county to maintain confidentiality of the reporting entity.



* 10 counties reported 2 outbreaks ** 13 counties reported 1 outbreak

Table 2. Confirmed Outbreaks by Reporting County, West Virginia, 2014 (n=186)

Reporting County	Number of Outbreaks
Berkeley	2
Boone	1
Brooke	3
Cabell	4
Calhoun	1
Clay	1
Fayette	3
Gilmer	1
Grant	2
Greenbrier	10
Hampshire	3
Hancock	2
Hardy	3
Harrison	2
Jackson	4
Jefferson	3
Kanawha	35
Lincoln	2
Logan	1
Marion	5
Marshall	2
Mercer	13
Mineral	1
Monongalia	13
Monroe	1
Multiple*	5
Nicholas	1
Ohio	11
Pleasants	1
Preston	2
Putnam	5
Raleigh	6
Randolph	3
Ritchie	3
Roane	2
Summers	1
Tyler	3
Upshur	3
Wayne	2
Wetzel	1
Wirt	1
Wood	18

*See Table 3 for details

Table 3. Multi-County Outbreaks, West Virginia, 2013 (n=5)

Region	Counties with Cases
All regions	Berkeley, Braxton, Brooke, Cabell, Fayette, Greenbrier, Monongalia
Northern region	Monongalia, Preston
All regions	Cabell, Gilmer, Harrison, Jackson, Kanawha, Monongalia, Preston, Putnam, Roane, Summers, Upshur, Wayne, Wetzel, Wyoming
Southern and Central regions	Greenbrier, Kanawha
All regions	Berkeley, Greenbrier, Kanawha, Lincoln, Raleigh, Mercer, Wirt, Wood

Surveillance Regions:

All surveillance regions in the State reported outbreaks in 2013 (Figure 3). See the map (Figure 4) on page 9. Table 4 depicts number of outbreaks from different surveillance regions including their counties, populations, number of schools and number of various healthcare facilities.

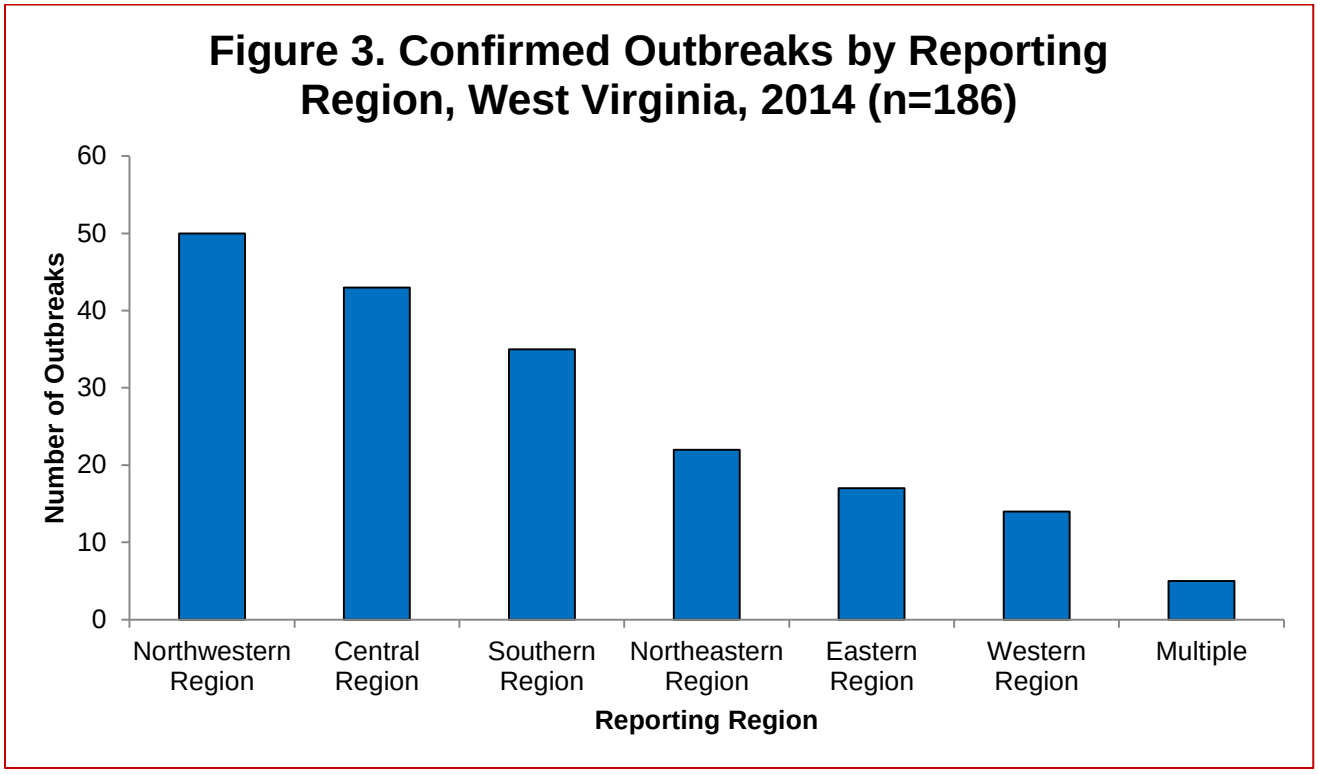
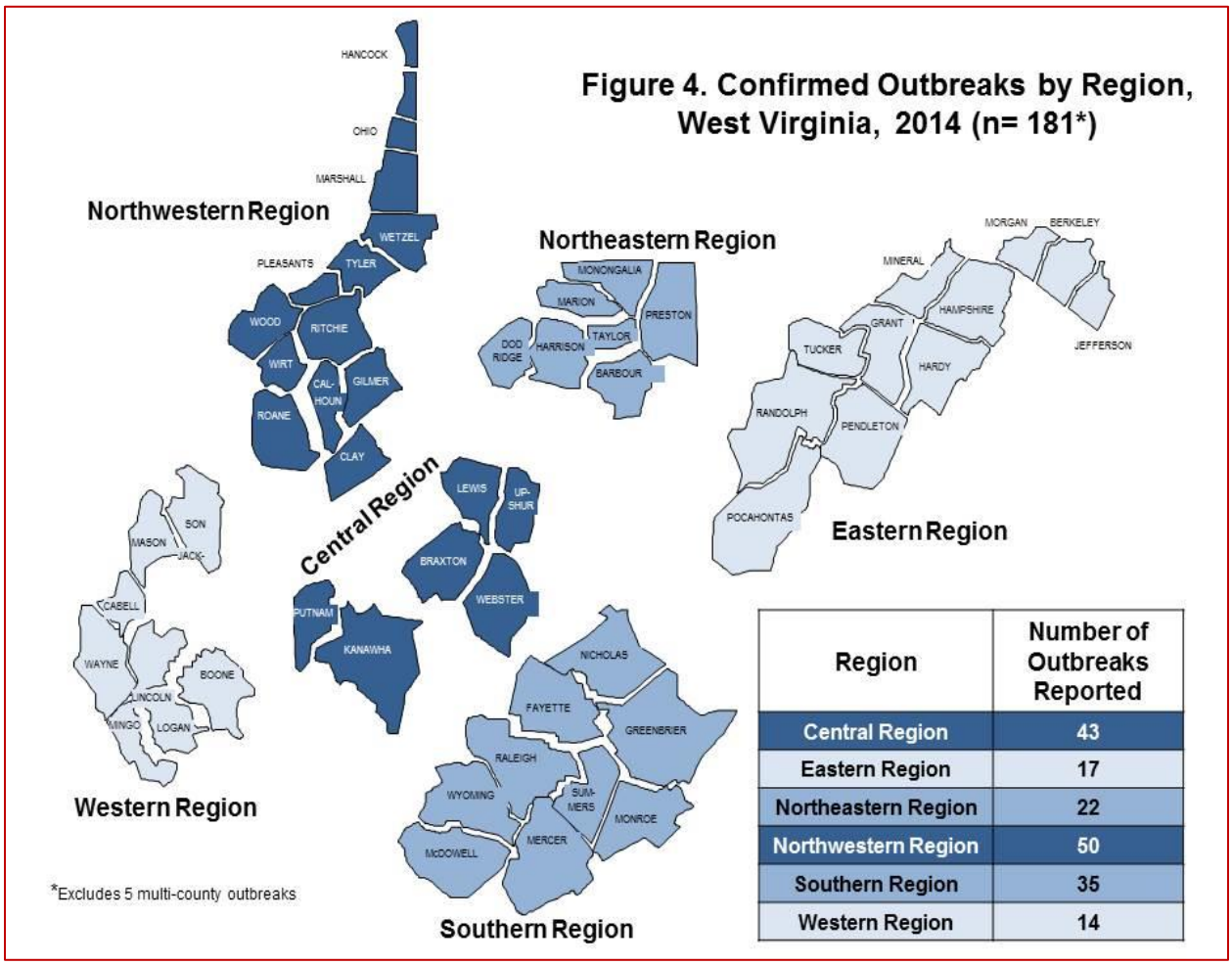


Table 4. Surveillance Regions by Counties, Populations*, Number of Schools, Healthcare Facilities, and Confirmed Outbreaks**, West Virginia, 2014

Region	Counties	Number of Outbreaks	Population	Schools	Acute Care Hospitals	Critical Access Hospital	Long-Term Care Facilities
Northwestern Region	Calhoun, Clay, Gilmore, Hancock, Marshall, Ohio, Pleasants, Ritchie, Roane, Tyler, Wetzel, Wirt, Wood	50	307,065	118	6	4	26
Central Region	Braxton, Kanawha, Lewis, Putnam, Upshur, Webster	43	312,973	127	9	1	17
Southern Region	Fayette, Greenbrier, McDowell, Mercer, Monroe, Nicholas, Raleigh, Summers, Wyoming	35	321,261	129	7	3	26
Northeastern Region	Barbour, Doddridge, Harrison, Marion, Monongalia, Preston, Taylor	22	301,645	91	4	3	22
Eastern Region	Grant, Hampshire, Hardy, Jefferson, Mineral, Morgan, Pendleton, Randolph, Tucker, Pocahontas	17	309,057	114	2	6	20
Western Region	Boone, Cabell, Jackson, Lincoln, Logan, Mason, Mingo, Wayne	14	303,412	119	5	2	17

* Using 2012 Census projections **Excluding multi-county outbreaks



Region	Number of Outbreaks Reported
Central Region	43
Eastern Region	17
Northeastern Region	22
Northwestern Region	50
Southern Region	35
Western Region	14

Proportion of Outbreaks with Laboratory Testing:

Laboratory testing is crucial in outbreak management. Timely collection of specimens facilitates diagnosis and institution of control measures. Laboratory confirmation of outbreaks is one of the surveillance indicators and considered a performance measure for LHDs. LHDs, with assistance from their regional epidemiologist, try to collect appropriate samples in a timely manner. As shown in Figure 5, the percentage of outbreaks with laboratory testing varied by region from 57% to 86% with mean and median of 71% and 70% respectively.

Some outbreaks do not require laboratory testing, such as scabies and hand, foot and mouth disease. However, all respiratory outbreaks should have laboratory testing.

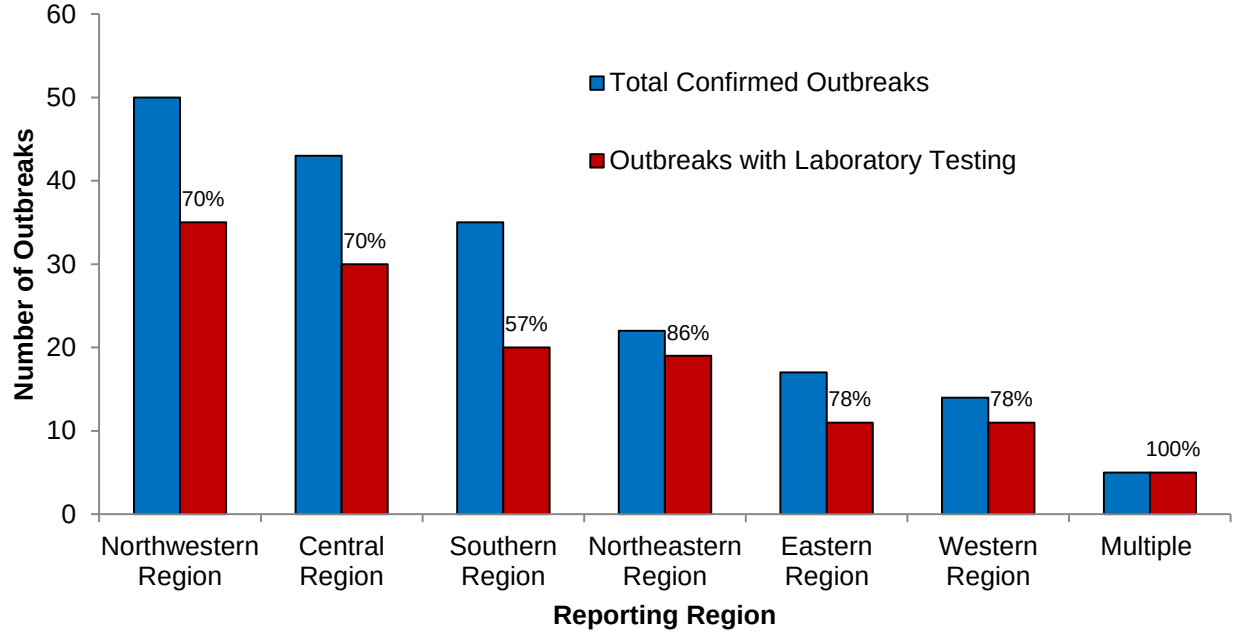


Figure 6 depicts laboratory confirmation of respiratory disease outbreaks by each surveillance region. Of the 65 confirmed respiratory outbreaks, 63 (97%) had laboratory testing done.

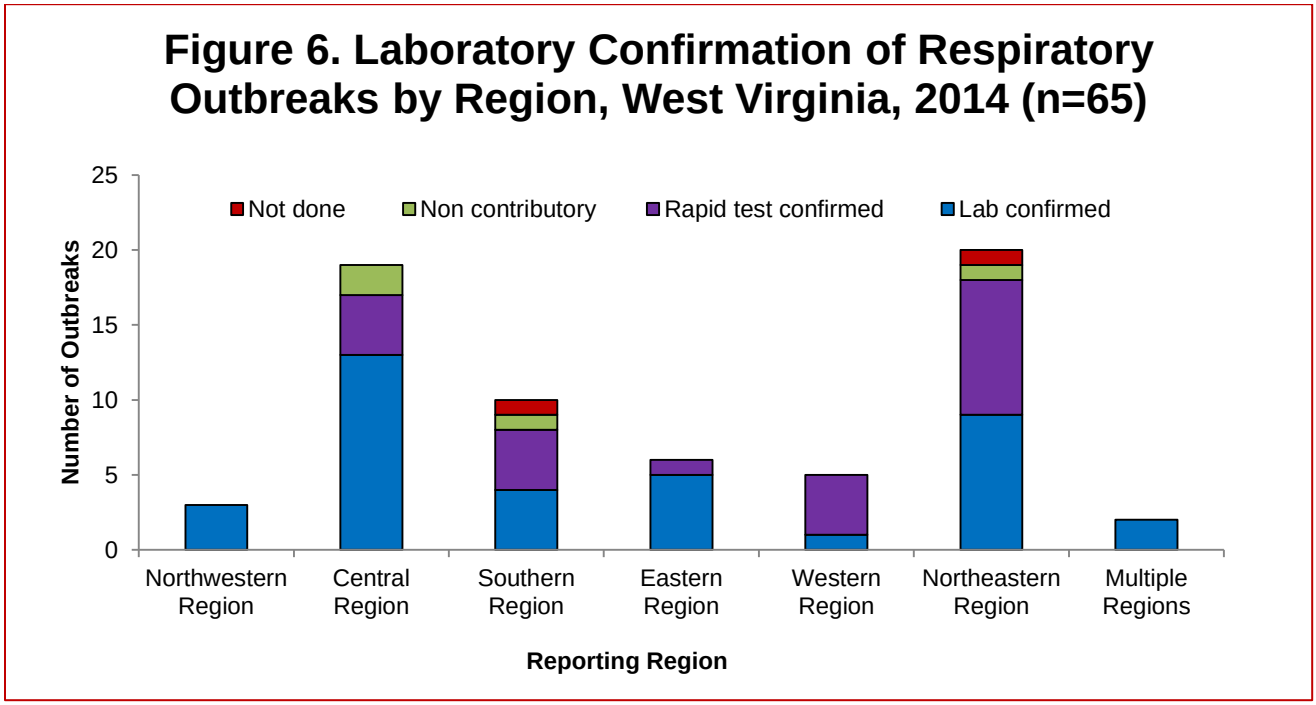
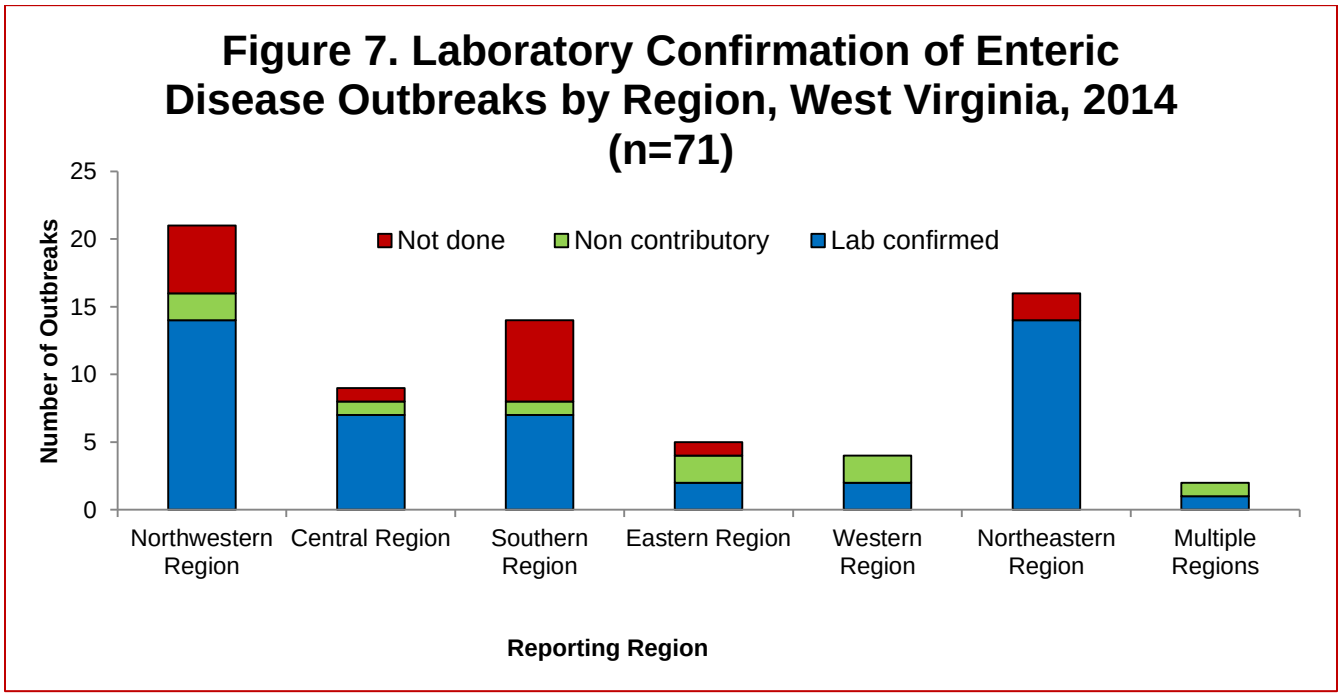


Figure 7 illustrates laboratory confirmation of enteric outbreaks by regions. Of the 71 confirmed enteric disease outbreaks, 51 (79%) had laboratory testing.



Outbreak Leadership:

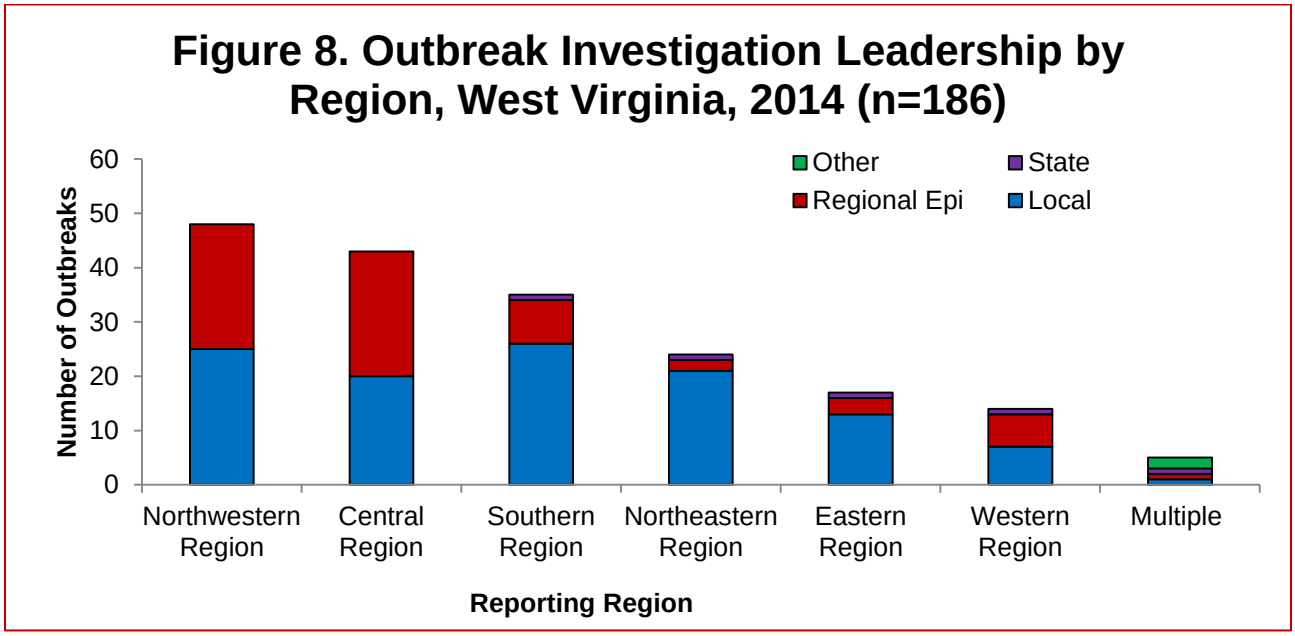
As a requirement to receive Epidemiology and Laboratory Capacity and/or Public Health Emergency Response funds, the State and LHDs are required to verify outbreak investigation leadership, complete a final outbreak report that meets the CDC guidelines, and share this report with pertinent partners. In 2012, BPH began collecting information on whether an outbreak investigation was led by LHDs, regional epidemiologists, BPH, or CDC/other states.

In 2014, LHDs led the investigation in 113 (61%) outbreaks followed by regional epidemiologists leading 66 (35%) and BPH/DIDE leading 5 (3%). CDC and other states led the investigation in 2 multi-state outbreaks (Table 5).

Table 5. Confirmed Outbreaks by Primary Leadership, West Virginia, 2014

Primary Leadership	Number of Outbreaks (n=186)	Percent
Local Health Departments (LHDs)	113	61
Regional Epidemiologists	66	35
BPH/DIDE	5	3
Other (CDC) or other states	2	1

Outbreak investigation primary leadership varies among different surveillance regions. In most of the regions, primary leadership is collaboratively assigned between regional epidemiologists and the LHDs. In a few regions, an outbreak investigation is primarily led by the regional epidemiologist due to the structure of the region. Figure 8 illustrates outbreak investigation leadership by region.

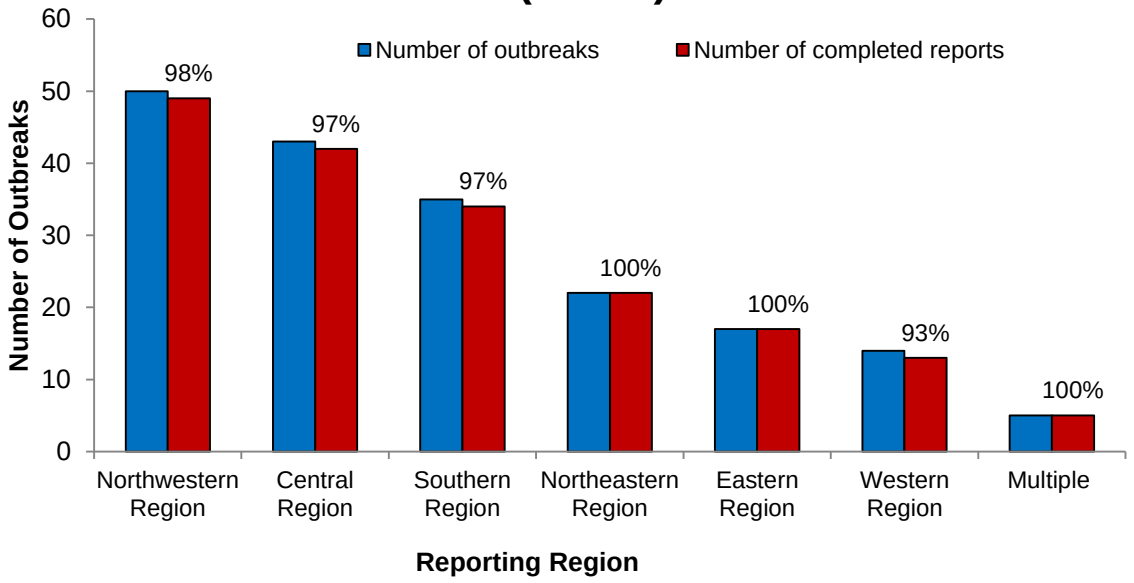


Outbreak Investigation Reports:

In 2013, BPH began tracking the number of final outbreak reports that were generated by LHDs and shared with stakeholders as per grant requirements and CDC guidelines. DIDE posted outbreak report forms online for each type of outbreak in a fillable format to assist LHDs staff and regional epidemiologists completing the outbreak reports within 30 days of closing the outbreak.

In 2014, a final outbreak report was completed in 182 (98%) outbreaks. As shown in Figure 9, the percentage of completed outbreak reports varied by region from 93% to 100% with mean and median of 98% and 98% respectively. In 2013, the mean and median of completed outbreak reports were 59% and 62% respectively which indicates marked improvement during 2014.

Figure. 9 Confirmed Outbreaks and Completed Outbreak Reports by Region, West Virginia, 2014 (n=186)



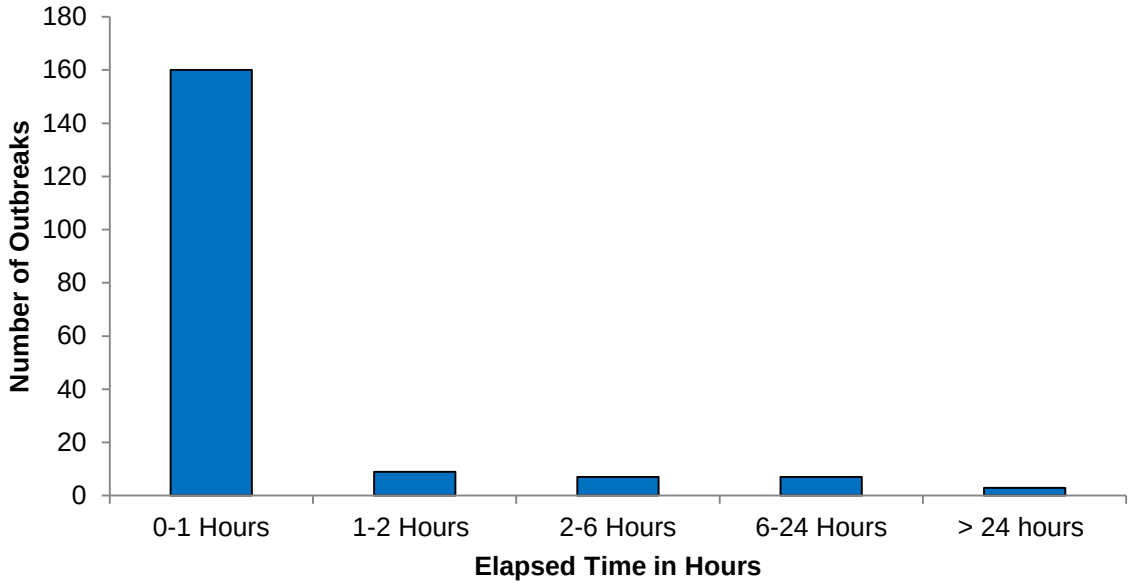
Outbreak Reporting Time:

In West Virginia, outbreaks are immediately reportable to the LHDs. In August 2013, a new Reportable Disease Rule was implemented that mandates immediate reporting of outbreaks or clusters of diseases to LHDs regardless of the settings. According to the Reportable Disease Rule and as a condition of receiving threat preparedness funding, LHDs are required to report suspected outbreaks or clusters to the BPH, DIDE within 60 minutes.

To measure adherence to this requirement, date and time of report to the LHD and date and time of report to DIDE are recorded on a standard intake form so that elapsed reporting time can be calculated.

In 2014, date and time of report to the LHDs and BPH were collected in 186 (100%) outbreaks. The mean and median of hours elapsed between the time the outbreak was reported to the LHD and the time the outbreak was reported to the BPH was 190 and 25 minutes respectively. The range of hours between the time the outbreak was reported to the LHD and the time the outbreak was reported to the BPH was 0 to 11,171 minutes. Of the 186 outbreaks where date of notification was known for the State and LHD, same-day notification occurred for 183 (98%) outbreaks (Figure 10).

Figure 10. Elapsed Time for Reporting Outbreaks Between State and Local Health Departments, West Virginia, 2014 (n=186)



Summary of Outbreak Performance Measures by Region/County
West Virginia, 2014

Tables 6 through 13 summarize performance measures by county and region.

Table 6. Outbreak Performance Measures by Region, West Virginia, 2014

Region	Number of Outbreaks	Outbreaks with Completed Reports No (%)	Outbreaks with Laboratory Testing No (%)	Median Report Time in Minutes
Northwestern Region	50	49 (98)	36 (72)	20
Central Region	43	42 (98)	30 (70)	20
Southern Region	35	34 (97)	20 (57)	30
Northeastern Region	22	22 (100)	18 (82)	15
Eastern Region	17	17 (100)	11 (65)	60
Western Region	14	13 (93)	11 (79)	52
Multiple Regions	5	5 (100)	5 (100)	30
All Regions	186	182 (98)	131 (70)	25

Table 7. Outbreak Performance Measures by County, Northwestern Region, West Virginia, 2014

County	Number of Outbreaks	Outbreaks with Completed Reports No (%)	Outbreaks with Laboratory Testing No (%)	Median Report Time in Minutes
Brooke	3	3 (100)	3 (100)	10
Calhoun	1	1 (100)	1 (100)	60
Clay	1	1 (100)	0 (0)	45
Gilmer	1	1 (100)	1 (100)	1,320
Hancock	2	2 (100)	1 (50)	528
Marshall	2	2 (100)	2 (100)	28
Ohio	11	11 (100)	6 (55)	17
Pleasants	1	1 (100)	1 (100)	5
Richie	3	2 (67)	2 (67)	30
Roane	2	2 (100)	1 (50)	13
Tyler	3	3 (100)	2 (67)	131
Wetzel	1	1 (100)	1 (100)	15
Wirt	1	0 (0)	0 (0)	25
Wood	18	18 (100)	15 (83)	16
Northwestern Region	**50**	**49 (98)**	**36 (72)**	**20**

Table 8. Outbreak Performance Measures by County, Central Region, West Virginia, 2014

Central Region	Number of Outbreaks	Outbreaks with Completed Reports No (%)	Outbreaks with Laboratory Testing No (%)	Median Report Time in Minutes
Braxton	0			
Kanawha	35	34 (97)	25 (71)	20
Lewis	0			
Putnam	5	5 (100)	3 (60)	20
Upshur	3	3 (100)	2 (67)	20
Webster	0			
Central Region	**43**	**42 (98)**	**30 (70)**	**20**

Table 9. Outbreak Performance Measures by County, Southern Region, West Virginia, 2014

County	Number of Outbreaks	Outbreaks with Completed Reports No (%)	Outbreaks with Laboratory Testing No (%)	Median Report Time in Minutes
Fayette	3	2 (67)	0 (0)	55
Greenbrier	10	10 (100)	7 (70)	15
McDowell	0			
Mercer	13	13 (100)	6 (46)	15
Monroe	1	1 (100)	1 (100)	23
Nicholas	1	1 (100)	0 (0)	15
Raleigh	6	6 (100)	5 (83)	35
Summers	1	1 (100)	1 (100)	40
Wyoming	0			
Southern Region	**35**	**34 (97)**	**20 (57)**	**25**

Table 10. Outbreak Performance Measures by County, Northeastern Region, West Virginia, 2014

County	Number of Outbreaks	Outbreaks with Completed Reports No (%)	Outbreaks with Laboratory Testing No (%)	Median Report Time in Minutes
Barbour	0			
Doddridge	0			
Harrison	2	2 (100)	2 (100)	28
Marion	5	5 (100)	4 (80)	23
Monongalia	13	13 (100)	12 (92)	15
Preston	2	2 (100)	0 (0)	86
Taylor	0			
Northeastern Region	**22**	**22 (100)**	**18 (82)**	**15**

Table 11. Outbreak Performance Measures by County, Eastern Region, West Virginia, 2014

County	Number of Outbreaks	Outbreaks with Completed Reports No (%)	Outbreaks with Laboratory Testing No (%)	Median Report Time in Minutes
Berkeley	2	2 (100)	2 (100)	6,193
Grant	2	2 (100)	2 (100)	40
Hampshire	3	3 (100)	2 (67)	120
Hardy	3	3 (100)	1 (33)	50
Jefferson	3	3 (100)	1 (33)	23
Mineral	1	1 (100)	1 (100)	150
Morgan	0			
Pendleton	0			
Pocahontas	0			
Randolph	3	3 (100)	2 (67)	50
Tucker	0			
Eastern Region	**17**	**17 (100)**	**11 (65)**	**60**

Table 12. Outbreak Performance Measures by County, Western Region, West Virginia, 2014

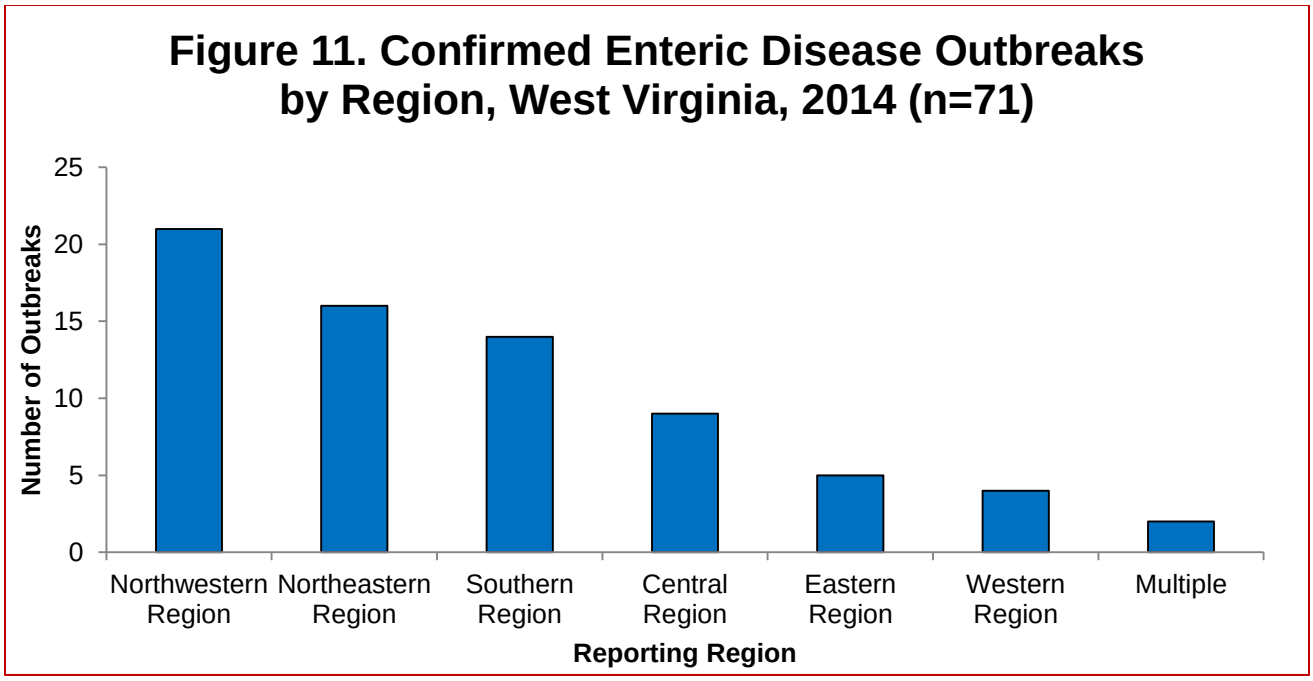
County	Number of Outbreaks	Outbreaks with Completed Reports No (%)	Outbreaks with Laboratory Testing No (%)	Median Report Time in Minutes
Boone	1	1 (100)	1 (100)	10
Cabell	4	4 (100)	3 (75)	45
Jackson	4	4 (100)	4 (100)	88
Lincoln	2	1 (50)	1 (50)	83
Logan	1	1 (100)	0 (0)	1,020
Mason	0			
Mingo	0			
Wayne	2	2 (100)	2 (100)	8
Western Region	**14**	**13 (93)**	**11 (79)**	**52**

Table 13. Outbreak Performance Measures, Outbreaks Reported in Multiple Counties/Regions, West Virginia, 2014

Multiple Counties or Regions	Number of Outbreaks	Outbreaks with Completed Reports No (%)	Outbreaks with Laboratory Testing No (%)	Median Report Time in Minutes
Multiple Regions	5	5 (100)	5 (100)	30

Enteric Disease Outbreaks, West Virginia, 2014 (n=71)

Outbreaks of enteric illness were the most common type of disease outbreak in 2014, accounting for 38% of all outbreaks (refer to Table 1 on page 4.) A total of 71 enteric disease outbreaks were reported by 25 (45%) counties. All 6 surveillance regions reported enteric disease outbreaks (Figure 11). Two (2) enteric illness outbreaks were reported in West Virginia as part of multi-state outbreaks. CDC and other states were the lead investigators for the multi-state outbreaks.



Fifty-eight (58, 82%) enteric disease outbreaks were reported from healthcare facilities including 49 from Long-term Care Facilities (LTCFs), 4 from assisted-living facilities (ALFs), 3 from hospitals and 2 from rehabilitation centers (Table 14).

Outbreaks of norovirus gastroenteritis were the most common type of enteric disease outbreaks, accounting for 42 (59%) outbreaks, followed by acute gastroenteritis outbreaks accounting for 24 (34%) outbreaks (Table 15). Acute gastroenteritis outbreaks were defined as outbreaks of illness with short duration (3 days or less) characterized by acute onset of vomiting and/or diarrhea without laboratory confirmation.

Table 14. Enteric Disease Outbreaks by Transmission Setting, West Virginia, 2014

Transmission Setting	Number of Outbreaks (n=71)	Percent
LTCFs	49	69
ALFs	4	6
Communities	3	4
Camps	3	4
Hospitals	3	4
Restaurants	3	4
Schools	3	4
Rehabilitation Centers	2	3
Daycare	1	1

All norovirus outbreaks were confirmed by Polymerase Chain Reaction (PCR) testing. While norovirus genotype II accounted for the majority of norovirus outbreaks (24), genotype I accounted for 9 outbreaks, 1 norovirus outbreak was caused by norovirus genotype I and II, and 8 norovirus outbreaks were not subtyped.

Clostridium difficile infection (CDI) outbreaks are counted with MDRO outbreaks.

Table 15. Outbreaks of Enteric Disease by Clinical Syndrome/Etiologic Agent, West Virginia, 2014 (n=71)

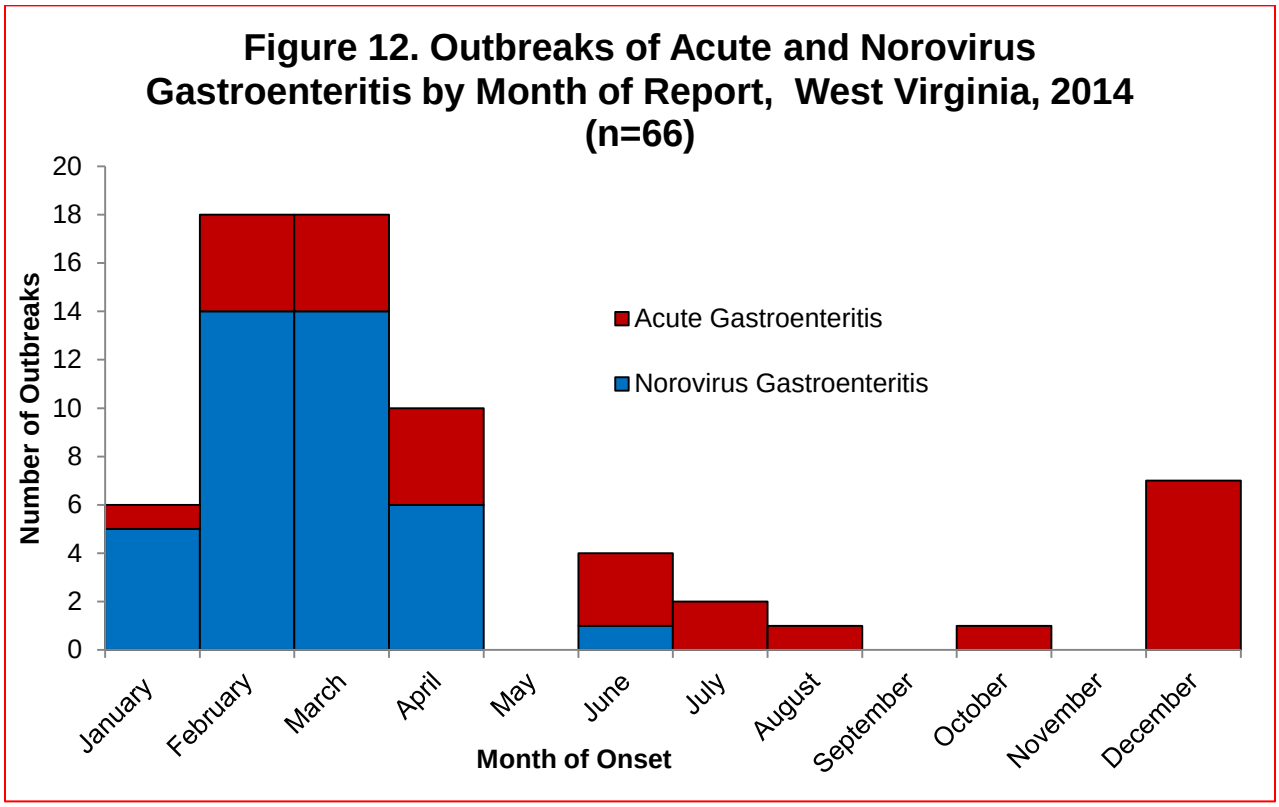
Clinical Syndrome/Etiologic Agent	Number of Outbreaks (n=71)	Percent
Norovirus Gastroenteritis	42	59
Acute Gastroenteritis	24	34
Campylobacteriosis	1	1.4
Rotavirus Gastroenteritis	1	1.4
Salmonellosis	1	1.4
***Staphylococcal* Food Poisoning**	1	1.4
Giardia Lamblia	1	1.4

Among the 24 outbreaks characterized as acute gastroenteritis, laboratory tests were negative or noncontributory in 9 and not done in 15 outbreaks.

The majority of enteric disease outbreaks (62, 87%) were due to person-to-person transmission.

Outbreaks of acute gastroenteritis and norovirus exhibited similar seasonality. Outbreaks of acute gastroenteritis followed a pattern of transmission similar to norovirus

gastroenteritis outbreaks suggesting that many of these outbreaks were likely caused by norovirus (Figure 12).



One enteric outbreak was caused by several *Salmonella* species. This outbreak was reported in April 2014 as a part of multi-state outbreak of salmonellosis due to close contact with live baby poultry (chicks and ducks). CDC conducted multiple traceback investigations. Findings of live baby poultry from homes of ill persons identified Mt. Healthy Hatcheries in Ohio as the source of chicks and ducklings. The same hatchery was also linked to a multi-state outbreak of salmonellosis in 2012 and 2013. A total of 363 individuals from 43 states were infected with the outbreak strains. West Virginia had a total of 18 cases from multiple regions. To prevent Salmonella infection, CDC recommends thorough hand washing after touching live poultry or their environment and never let live poultry inside the house particularly around children.

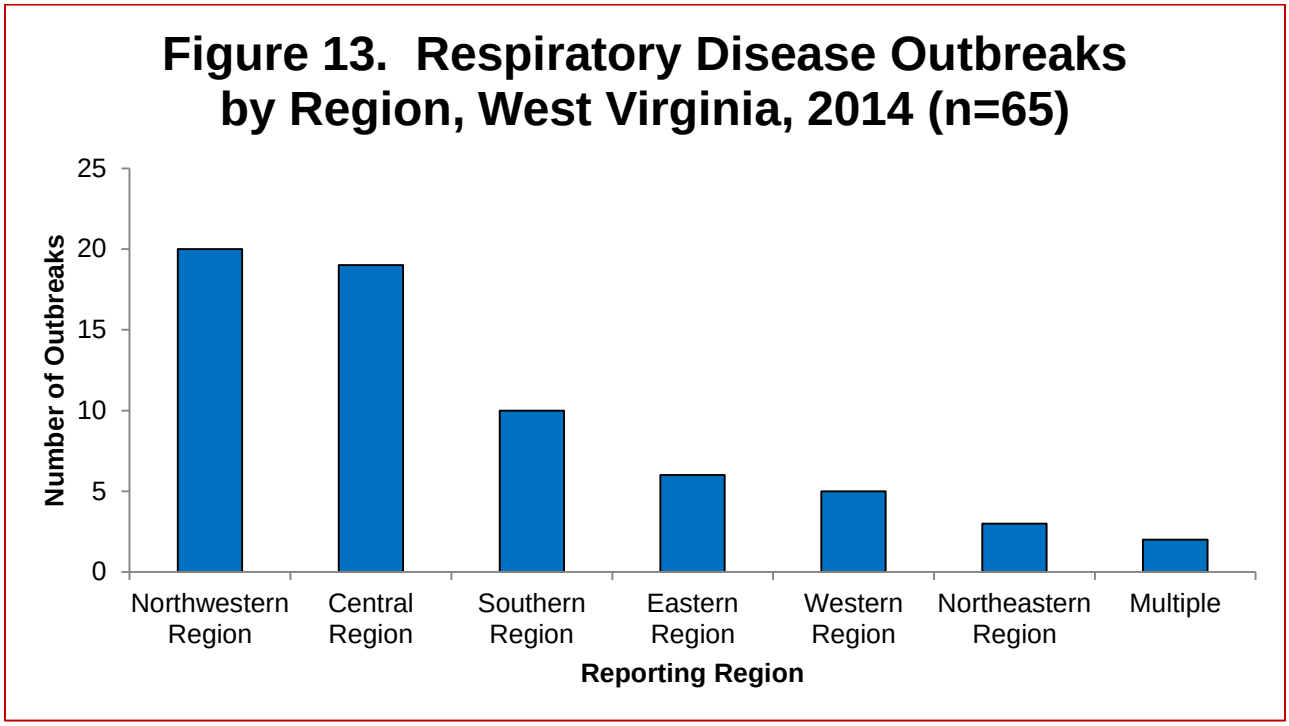
In June 2014, 31 individuals developed vomiting or diarrhea within 4 hours of consuming food at a restaurant in West Virginia. The constellation of symptoms, incubation period and illness duration were suggestive of gastroenteritis caused by ingestion of a pre-formed toxin. Epidemiologic investigation indicated that food containing cheese had the highest food-specific attack rate. Laboratory analysis at CDC identified *S. aureus* toxin type A as well as *S. aureus* positive for toxin genes *sea* and *seh in* leftover food items containing cheese. Additionally, two stool samples from case-patients were positive for *S. aureus* positive for *sea* and *seh* genes consistent with

illness caused by *S. aureus* enterotoxin. The environmental investigation identified several issues with handling, processing and storing of the cheese. The LHD provided recommendations to the facility and followed up with additional site visits.

In December 2014, 5 laboratory confirmed cases of Giardiasis were reported among members of two households. Both households had wells in a common area which were prone to flooding. Laboratory testing of water specimens from the wells was negative for fecal coliforms consistent with no recent fecal contamination of the water. However, the possibility of *Giardia* contamination of the water cannot be ruled out. Additionally, several unhygienic practices/conditions were identified in both households. Although the investigation was unable to determine the source of this outbreak, findings suggest that person-to-person transmission was the most likely mode of transmission.

Respiratory Disease Outbreaks, West Virginia, 2014 (n=65)

Outbreaks of respiratory illness were the second most common type of disease outbreak in 2014, accounting for 65 (35%) confirmed outbreaks. (Refer to Table 1 on page 4.) Respiratory illness outbreaks were reported by 28 (51%) counties from the 6 surveillance regions (Figure 13).



Confirmed influenza outbreaks accounted for the majority of respiratory disease outbreaks followed by acute respiratory syndrome (ARS), and influenza-like illness (ILI) (Table 16).

An outbreak of influenza in a LTCF is defined as three or more cases of ILI occurring within 72 hours in residents, **OR** a sudden increase in ILI, **OR** one case of influenza confirmed by any laboratory testing method in the presence of other reported ILI cases. A case of influenza is defined as a case that meets ILI case definition with laboratory confirmation. ILI is defined as a fever of a 100 F° or higher, plus cough, and/or sore throat in the absence of a known cause.

An outbreak of ARS is defined as acute onset of symptoms of upper and/or lower respiratory illness in excess of what is expected in a specific time and location with known or unknown etiologic agents.

Table 16. Respiratory Disease Outbreaks by Clinical Syndrome, West Virginia, 2014

Clinical Syndrome	Number of Outbreaks (n=65)	Percent
Influenza	40	62
Acute Respiratory Syndrome (ARS)	18	28
Influenza-Like Illness (ILI)	2	3
Streptococcal pharyngitis	2	3
Pneumonia	1	2
Pontiac Fever	1	2
Pertussis	1	2

Of respiratory outbreaks, 59 (91%) were laboratory confirmed, 4 (6%) had laboratory testing that was negative or noncontributory, and in 2 (3%) outbreaks laboratory testing was not done.

Figure 14 illustrates respiratory disease outbreaks by etiologic agent and month of onset. The trend of influenza outbreaks in 2014 was consistent with that of ILI reported by sentinel providers. Table 17 lists all respiratory outbreaks by etiologic agents including other pathogens.

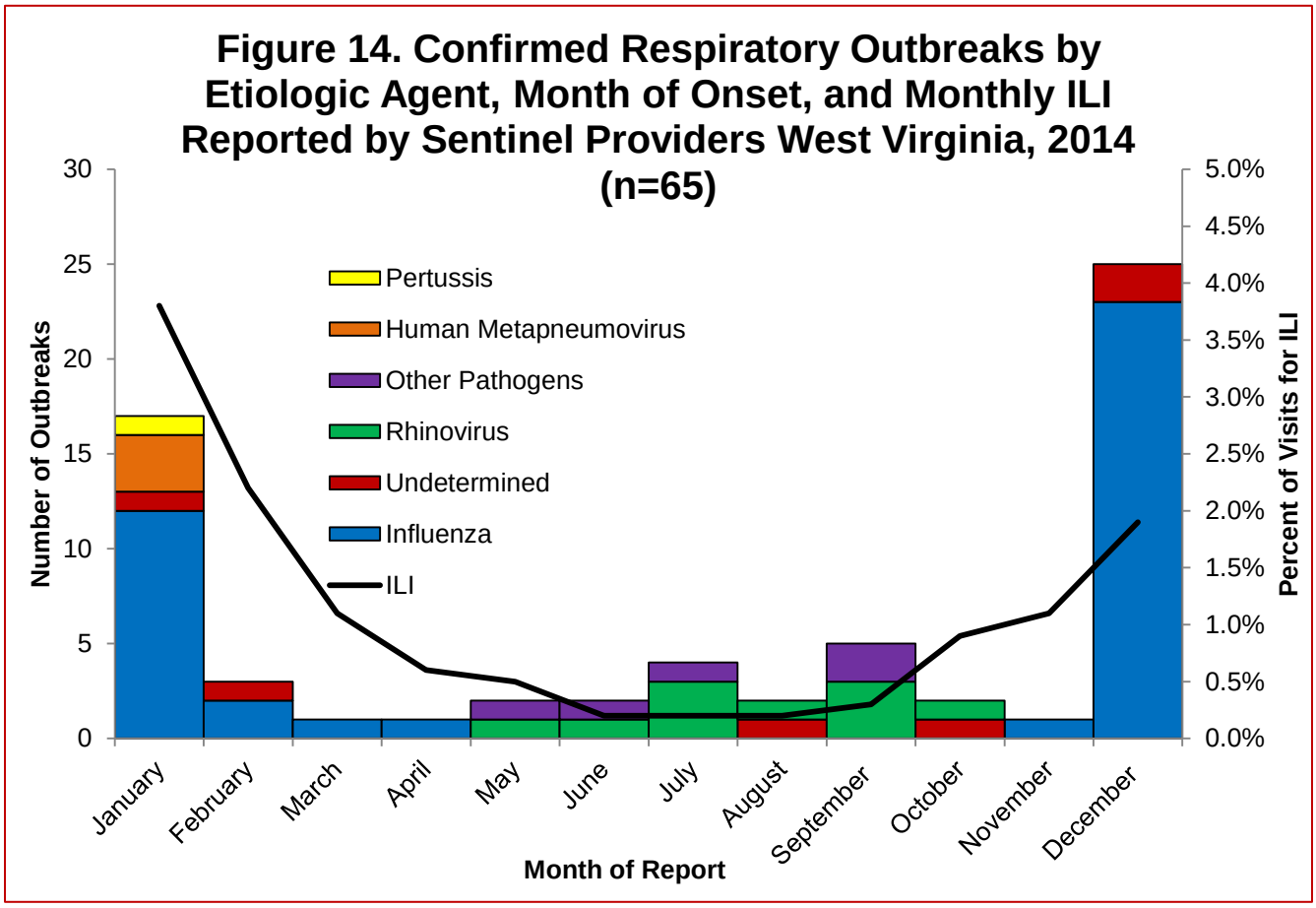


Table 17. Respiratory Disease Outbreaks by Etiologic Agent, West Virginia, 2014

Etiologic Agents	Number of Outbreaks (n=65)	Percent
Influenza	40	62
Rhinovirus	9	13
Undetermined	6	9
Human Metapneumovirus	3	5
Group A *Streptococcus* (GAS)	2	3
Enterovirus D68 (EVD68)	1	2
Legionella	1	2
Pertussis	1	2
Parainfluenza 3 Virus (PIV3)	1	2
Parainfluenza/Rhinovirus	1	2

The majority of respiratory disease outbreaks were reported in LTCFs followed by schools and ALFs (Table 18).

Table 18. Respiratory Disease Outbreaks by Transmission Setting, West Virginia, 2014

Transmission Setting	Number of Outbreaks (n=65)	Percent
LTCFs	50	77
Schools	5	8
ALFs	4	6
Correctional Facilities	2	3
Communities	2	3
Hotel	1	2
Rehabilitation Facility	1	2

Influenza Outbreaks:

In 2014, there were 40 laboratory confirmed influenza outbreaks accounting for 62% of all respiratory outbreaks. Twenty (20, 50%) influenza outbreaks were confirmed by Polymerase Chain Reaction (PCR) and 21 (50%) were confirmed by rapid influenza diagnostic test (RIDT). Table 19 depicts influenza outbreaks by type of influenza virus. Of the 17 influenza outbreaks with available typing 10 were Influenza A H1N1 and 7 were Influenza A H3. While influenza H1N1 outbreaks were reported from LTCFs (8) and correctional facilities (2), influenza A H3 was reported from LTCFs (4), ALFs (2) and schools (1).

LTCFs reported the majority (75%) of influenza outbreaks (Table 20). Influenza outbreaks are not uncommon among residents of LTCFs and institutionalized populations and are associated with increased morbidity and mortality.

Two (2) outbreaks of influenza B were reported in 2014. One (1) was PCR confirmed and reported in ALF and the other was confirmed by RIDT as influenza A and B and reported in a LTCF.

There were 2 ILI outbreaks reported from LTCFs.

Table 19. Influenza Outbreaks by Type of Influenza Virus, West Virginia, 2014

Etiologic Agent	Number of Outbreaks (n=40)	Percent
Influenza A	15	38
Influenza A H1N1	10	25
Influenza A H3	7	18
Influenza (no typing)	6	15
Influenza A and B	1	2
Influenza B	1	2

Table 20. Influenza Outbreaks by Transmission Setting, West Virginia, 2014

Transmission Setting	Number of Outbreaks (n=40)	Percent
LTCFs	30	75
ALFs	4	10
Schools	3	8
Correctional Facilities	2	5
Rehabilitation Facility	1	2

Non-Influenza Respiratory Viruses Outbreaks:

Over the last three years, an increasing number of non-influenza respiratory virus outbreaks have been diagnosed after the West Virginia Office of Laboratory Services (OLS) implemented the use of FilmArray PCR multiplex technology expanding the testing capacity of OLS. This testing technique allows testing for more than 20 respiratory viruses and bacteria in a short time. Prior to using this testing technique, non-influenza respiratory virus outbreaks were classified as outbreaks of acute respiratory syndrome of undetermined etiology. During 2014, this testing methodology was solely used for the purpose of outbreak investigation.

Rhinovirus Respiratory Outbreaks:

In 2014, 9 respiratory outbreaks were caused by rhinovirus. All rhinovirus outbreaks were reported in LTCFs and confirmed by PCR. In LTCFs, rhinovirus caused a wide variety of symptoms among residents ranging from mild upper respiratory tract infection (URTI) to severe lower respiratory tract infection (LRTI), and pneumonia. Occasional hospitalizations and deaths were reported. The mean and median attack rate among residents was 29% and 28% respectively with a range from 10% to 51%. Data were available to calculate attack rates among staff on 6 out of 9 outbreaks. The attack rates among staff ranged between 5% to 29% with a mean and median of 12% and 10% respectively.

Other Non-Influenza Respiratory Virus Outbreaks:

Human Metapneumovirus (HMPV) Outbreaks:

Three (3) outbreaks of HMPV were reported from LTCFs during the month of January 2014. The attack rate was 27% on the first outbreak. Of the 13 case-patients with respiratory illness, 9 (69%) developed pneumonia. No information on staff illness was available. The attack rate in the second outbreak was of 47%. Of the 27 case-patients, 18 (66%) developed pneumonia. Attack rate among staff was 18%. In the third outbreak, the attack rate was 26% and only a few cases developed pneumonia. Attack rate among staff was 19%. In the last two outbreaks, the illness among staff was milder than that among residents and no pneumonias were reported among staff members. HMPV can cause severe illness among elder populations. Early laboratory confirmation during respiratory outbreaks is crucial to implement the appropriate control measures.

Parainfluenza Virus (PIV) Outbreaks:

In 2014, 2 outbreaks of PIV were reported in LTCFs. The first one was reported during the month of May in a LTCF. PIV 3 was isolated from respiratory specimens. The attack rate in this outbreak was 24% among residents. The second outbreak was reported in the month of June. Both PIV 3 and rhinovirus were isolated from the respiratory specimens (Table 21). In this outbreak, the attack rate among residents and staff was 20% and 5% respectively.

Table 21. Summary of Other Non-Influenza Respiratory Virus Outbreaks, West Virginia, 2014 (n=5)

Month of Onset	Setting	Illness Description	Attack Rate***	Number of Specimens Tested	Results
January	LTCF	*URTI, **LRTI, mainly pneumonia	27%	4	2 HMPV 2 negative
January	LTCF	ILI, LRTI** Pneumonia	47%	4	1 HMPV 3 negative
January	LTCF	URTI, LRTI, Pneumonias	26%	6	2 HMPV 4 negative
May	LTCF	URTI, LRTI, Pneumonia	24%	3	3 PIV3
June	LTCF	URTI, LRTI, Pneumonia	20%	4	2 PIV3 1 Rhinovirus 1 negative

* URTI: Upper Respiratory Tract Infection ** LRTI: Lower Respiratory Tract Infection *** Attack rates are calculated among residents.

Other Respiratory Outbreaks:

Pertussis Outbreak:

During the month of January, a small outbreak of pertussis was reported in a community. Three (3) case-patients were identified. One (1) case-patient was confirmed by PCR testing and 2 case-patients met the probable case definition. All cases were up-to-date in their vaccination prior to illness onset. Ten (10) individuals received post exposure chemoprophylaxis. No further cases were identified.

Streptococcus Pharyngitis Outbreaks:

There were 2 outbreaks of *Streptococcus* pharyngitis reported in 2014. Both outbreaks were reported from schools. *Streptococcus* pharyngitis is caused by group A *Streptococcus* (GAS) and presents clinically with fever, pharyngitis and sore throat. Hand washing, respiratory etiquette, and exclusion of case-patients for at least one day after starting effective antibiotics are crucial steps to control these outbreaks.

Pontiac Fever

During the month of July, a cluster of Pontiac Fever was identified with 4 cases. One (1) case-patient was laboratory confirmed and 3 met the probable case definition. All cases reported exposure to the hot tub at a hotel within the incubation period. No further cases were identified. Pontiac Fever presents as a mild respiratory illness and most patients do not seek medical care, which may explain the small number of cases identified in the outbreak. In the interest of public safety, the hotel hot tub was immediately closed and remediation was initiated.

Enterovirus D-68 (EVD-68)

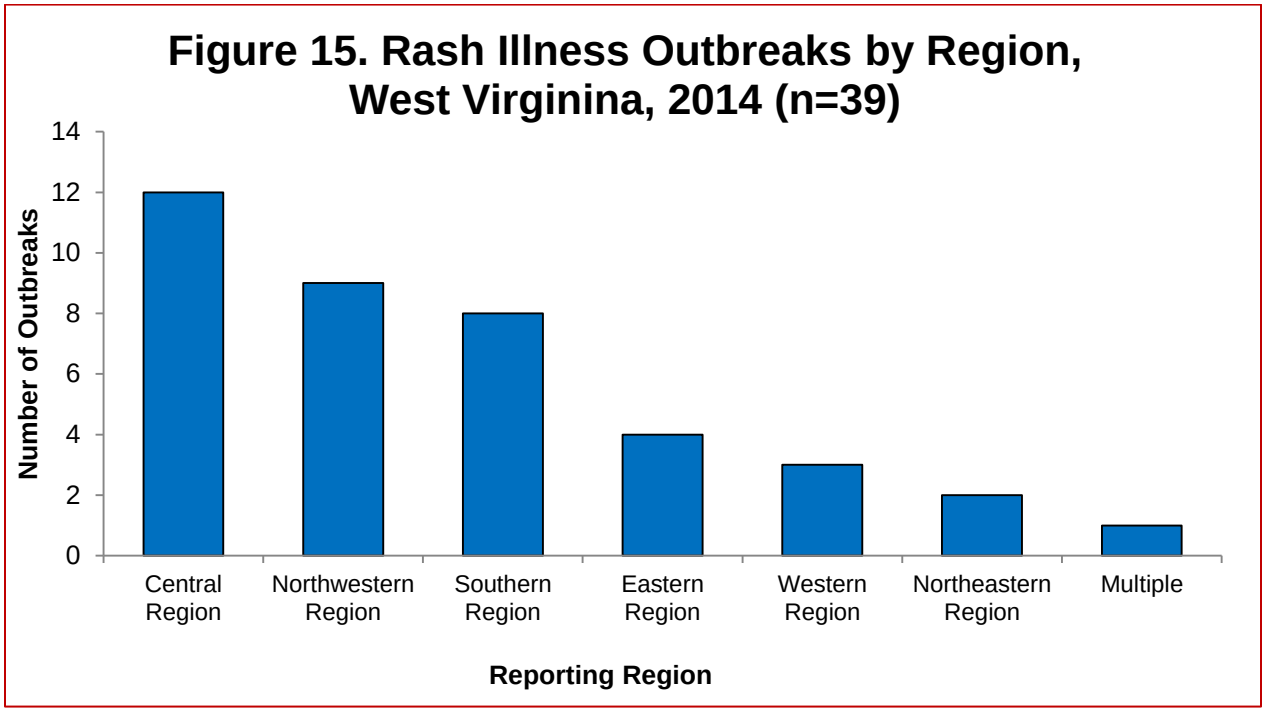
EVD-68 is one of over 100 known non-polio enteroviruses. It was first identified in California in 1962. Small clusters of EVD-68 have been reported to CDC since 1987. EVD-68 are spread from person-to-person through contact with bodily fluids particularly respiratory secretions or touching surfaces contaminated with the virus. EVD-68 can cause mild to severe respiratory illness.

In September 2014, a nationwide outbreak of EVD-68 occurred. Forty-nine (49) states and the District of Columbia identified 1,152 laboratory confirmed cases between mid-August and December 2014. The majority of confirmed cases were among children. Many of the cases had asthma or history of wheezing.

In West Virginia, 12 case-patients were confirmed as EVD-68 at the CDC laboratory. The mean and median age of case-patients was 6.4 and 5 years respectively with a range from 1-24 years. All case-patients (100%) had cough; 11 (91.7%) had wheezing; 6 (50%) had runny nose; 5 (41.7%) tachypnea; and 4 (33%) had fever. There were several other respiratory viruses circulating during this time in West Virginia and causing respiratory illnesses.

Rash Illness Outbreaks, West Virginia, 2014 (n=39)

Rash illness outbreaks were the third most common outbreak type in 2014, accounting for 39 (21%) outbreaks (refer to Table 1 on page 4). Twenty-four (24) (44%) counties from all 6 surveillance regions reported rash illness outbreaks (Figure 15). One (1) outbreak was reported in several counties and regions.



The most common type of rash illness outbreaks reported was hand, foot, and mouth disease (HFMD) (27), followed by scabies (8), fifth disease (3), and herpes gladiatorium (1) as shown in Table 22.

Table 22. Outbreaks of Rash Illness by Clinical Syndrome/Etiologic Agent, West Virginia, 2014

Clinical Diagnosis	Number of Outbreaks (n=39)	Percent
Hand, Foot, and Mouth Disease (HFMD)	27	69
Scabies	8	20
Fifth Disease	3	8
Herpes Gladiatorum	1	3

There were 27 outbreaks of HFMD reported in 2014 from all 6 surveillance regions. All HFMD outbreaks were clinically confirmed without laboratory testing. The majority (16) of HFMD outbreaks were reported form daycares. There were 10 outbreaks reported from schools and 1 among members of a sports team (Table 23).

HFMD is a common viral illness of infants and children and usually causes fever and blister-like eruptions in the mouth and/or a skin rash. There is no vaccine to protect against the viruses that cause HFMD. Prevention strategies include hand washing, avoiding close contact with infected person, and disinfecting dirty surfaces and soiled items such as toys.

Table 23. Outbreaks of HFMD by Transmission Setting, West Virginia, 2014

Transmission Settings	Number of Outbreaks (n=27)	Percent
Daycares	16	59
School	10	37
Sports Team	1	4

Among the 8 scabies outbreaks reported in 2014, 1 was laboratory confirmed and 7 did not have laboratory testing but were clinically diagnosed. Seven (7) outbreaks were reported from LTCFs and 1 from a community with a common exposure. Human scabies is caused by an infestation of the skin by the human itch mite *Sarcoptes scabiei*. The most common symptoms of scabies are intense itching and a skin rash. It is transmitted from person-to-person by direct, prolonged, skin-to-skin contact. Scabies is a common condition that affects people of all races and social classes. It can spread easily under crowded conditions where close body and skin contact is common. Scabies outbreaks are common among institutionalized populations such as LTCFs and correctional facilities.

Two (2) outbreaks of skin rashes were reported among members of school sports teams. One (1) was HFMD as mentioned above. The second was an outbreak of herpes gladiatorum that was initially identified among players of a high school wrestling team. Further investigation identified several other wrestling teams in several regions of the State. Seventeen (17) case-patients were identified including 4 laboratory confirmed. Preventive measures included early identification and isolation of cases and environmental cleaning.

Rash illness outbreaks in sports teams are not uncommon and are difficult to manage without laboratory confirmation. Management of these outbreaks changes considerably based on the causative organism identified with laboratory testing. LHDs are encouraged to work closely with their school nurses and coaches to obtain laboratory confirmation once they suspect a rash illness outbreak in a sports team.

Community Multidrug-Resistant Organism (MDRO) Outbreaks (n=2)

There were 2 confirmed MDRO outbreaks that were not associated with healthcare settings.

The first outbreak was an outbreak of Methicillin-resistant *Staphylococcus aureus* (MRSA) associated with a tattoo parlor. Investigation identified two clients who developed skin infections after getting a tattoo by the same artist. During the investigation, the LHD learned the tattoo artist was previously diagnosed with MRSA skin infection. Both the tattoo artist and one client had a positive culture for MRSA. The third case was tested but no results were available due to a laboratory error. The LHD performed several site visits to assess practice and environmental cleaning in the facility. Additionally, the LHD staff were able to interview a few other clients of this artist and no additional cases were identified. Education and recommendations for appropriate infection control practices were provided by the LHD to the facility staff.

According to CDC, community acquired MRSA (CA-MRSA) is the major cause of skin disease in the United States. CA-MRSA skin infections are usually transmitted from person-to-person by direct contact with a draining lesion or by contact with an asymptomatic carrier. Transmission also can occur indirectly through contact with contaminated items or environmental surfaces. CDC recommends that individuals who are considering a tattoo should be aware of the potential for CA-MRSA infection and should only use the services of a licensed tattooist who follows proper infection-control procedures.

The second outbreak was also an outbreak of MRSA skin infection among residents and attendees of a vocational center. The LHD identified 4 case-patients. All case-patients had a positive culture for MRSA. No illness was identified among staff. The LHD provided recommendations to the facility on hand hygiene and environmental cleaning. Residents and staff were educated to avoid sharing personal items.

Healthcare-associated MDRO outbreaks will be discussed under the healthcare-associated outbreaks section.

"Other" Outbreaks, West Virginia, 2014 (n=6)

There were 2 (1%) confirmed outbreaks in 2014 that were categorized as "other" (Table 24). "Other" outbreaks were reported by 2 counties from 2 surveillance regions.

Table 24. Outbreaks Categorized as "Other" by Clinical Syndrome/Etiologic Agent, West Virginia, 2014

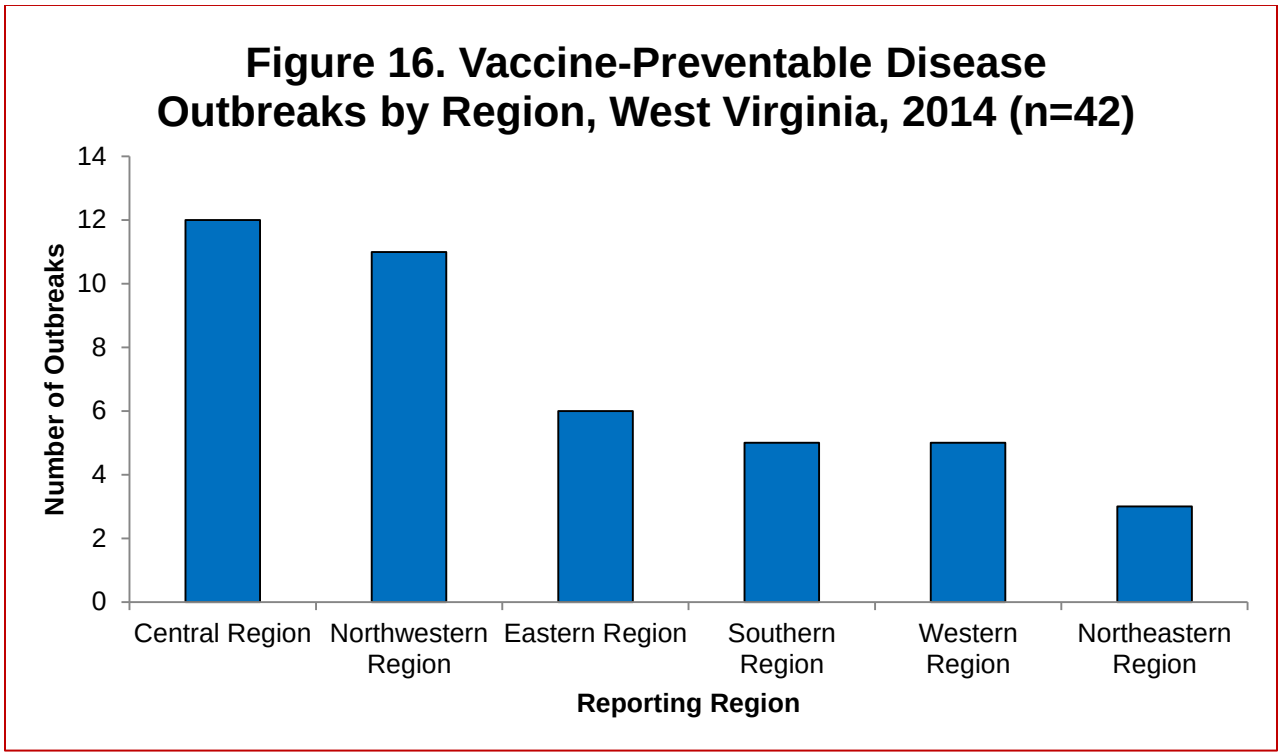
Clinical Syndrome/Etiologic Agent	Number of Outbreaks (n=2)	Percent
Febrile illness of unknown etiology	1	50
Potential healthcare-associated hepatitis C	1	50

The first outbreak was febrile illness of unknown etiology reported from a school. The majority of case-patients had fever, body aches, malaise and nausea. No laboratory testing was done. The attack rate among students was 29% and the highest absentee rate was 27%.

The second outbreak characterized as other will be discussed in the healthcare-associated outbreaks section.

Vaccine-Preventable Disease Outbreaks (VPDOs)

In 2014, 42 (23%) vaccine-preventable disease outbreaks were reported from 24 counties (43%) in all surveillance regions (Figure 16).



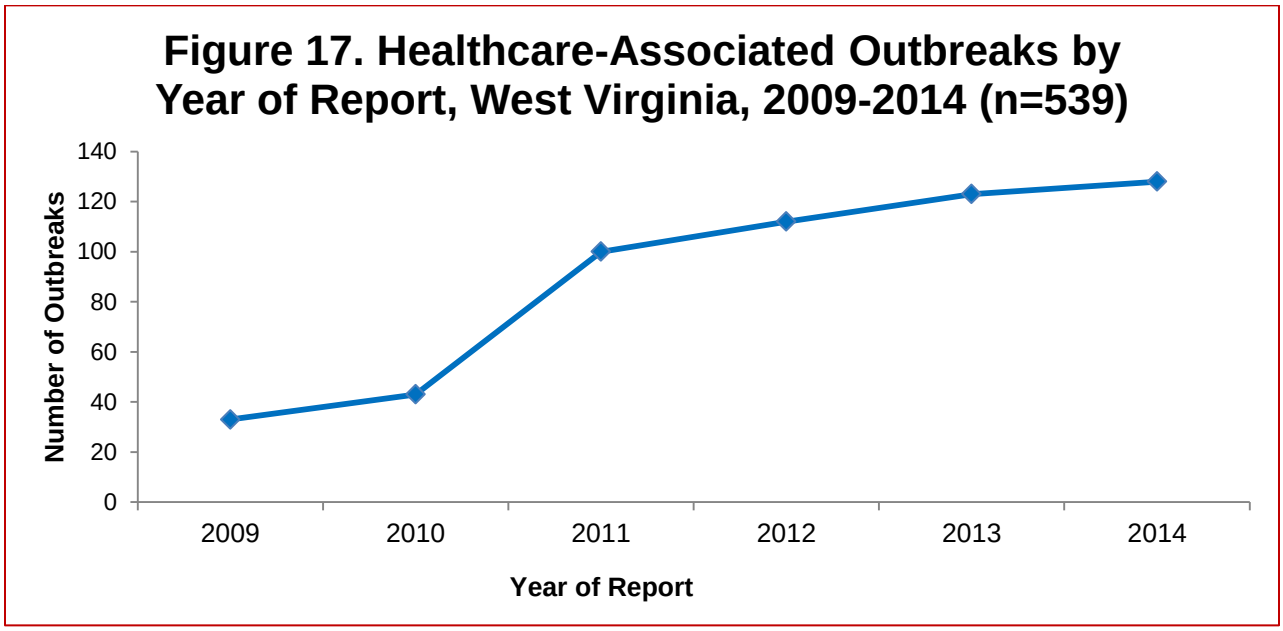
Influenza outbreaks were the most common VPDOs (40) followed by pertussis and rotavirus gastroenteritis with one outbreak each (Table 25).

Table 25. Vaccine-Preventable Disease Outbreaks by Etiologic Agent/Clinical Syndrome, West Virginia, 2014

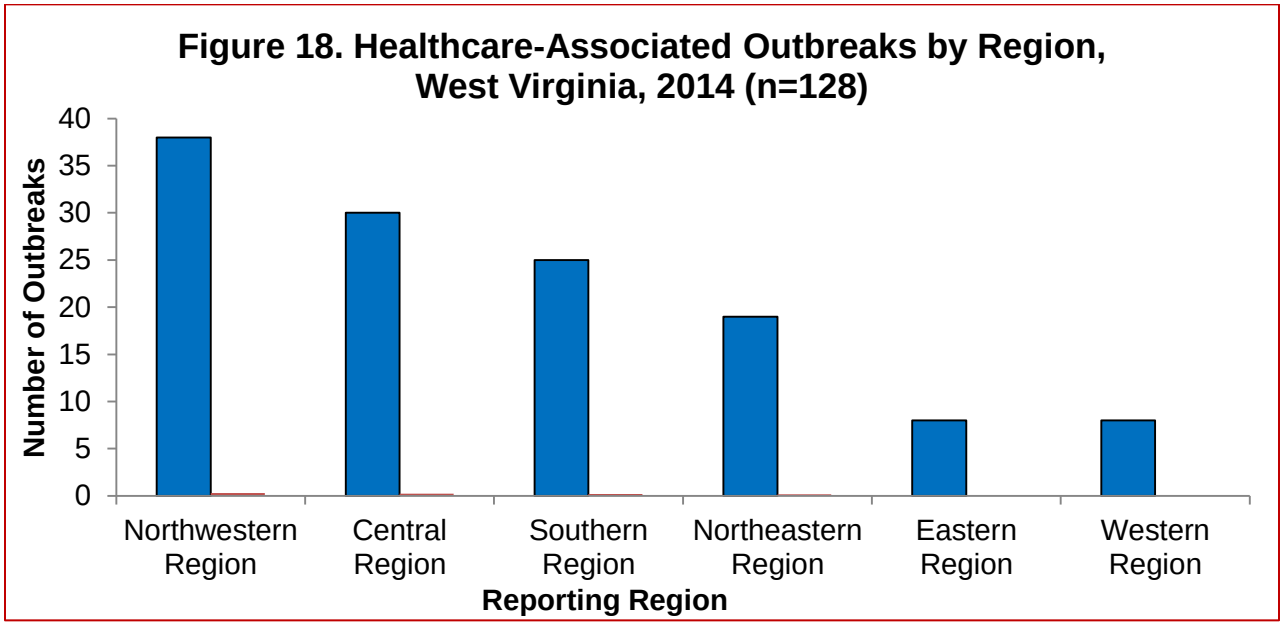
Clinical Syndrome/Etiologic Agent	Number of Outbreaks 42	Percent
Influenza	40	96
Pertussis	1	2
Rotavirus gastroenteritis	1	2

Healthcare-Associated Outbreaks (HAOs)

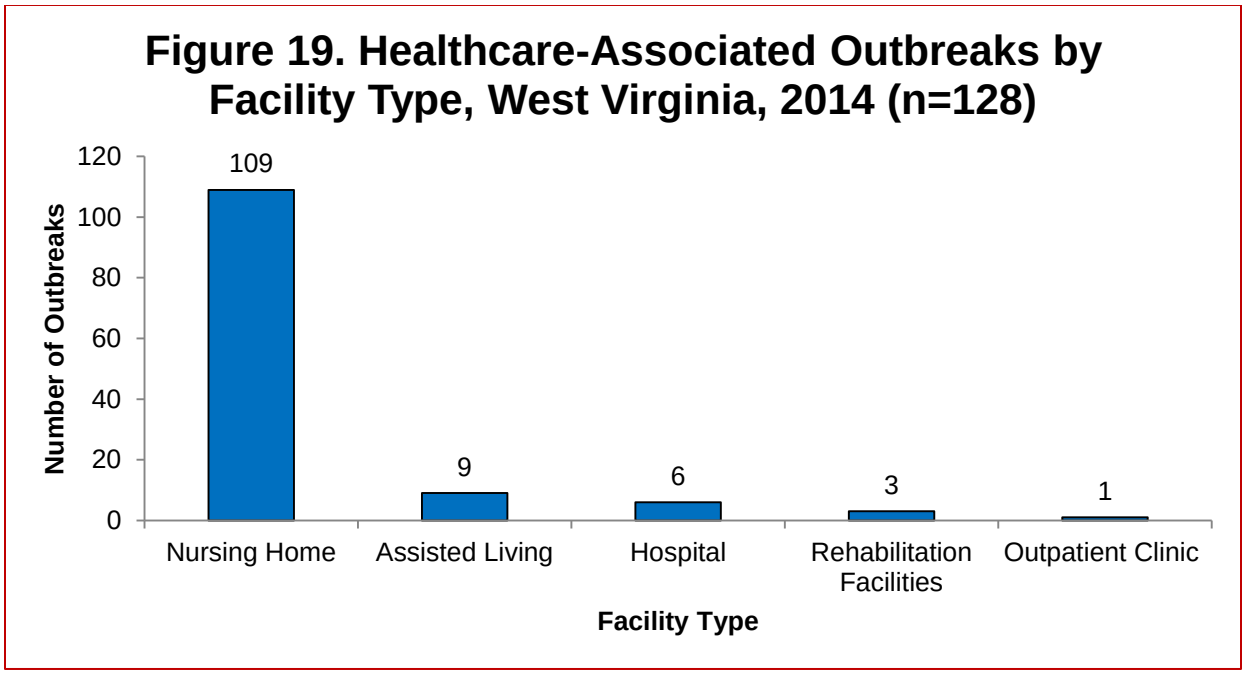
The number of HAOs reported in West Virginia has increased almost 4-fold since 2009 (Figure 17). HAOs are defined as "hospital-acquired or healthcare facility-acquired infections among patients or staff clustered temporally and/or geographically and represent an increase in the incidence over expected background rates."



In 2014, 128 HAOs were reported from 37 (67%) counties in all surveillance regions (Figure 18). HAOs accounted for 69% of all confirmed outbreaks in West Virginia.



The majority of HAOs were reported in LTCFs (109, 85%), followed by ALFs (9, 7%) hospitals (6, 5%), rehabilitation facilities (3, 2%) and an outpatient clinic (1, 1%) (Figure 19).

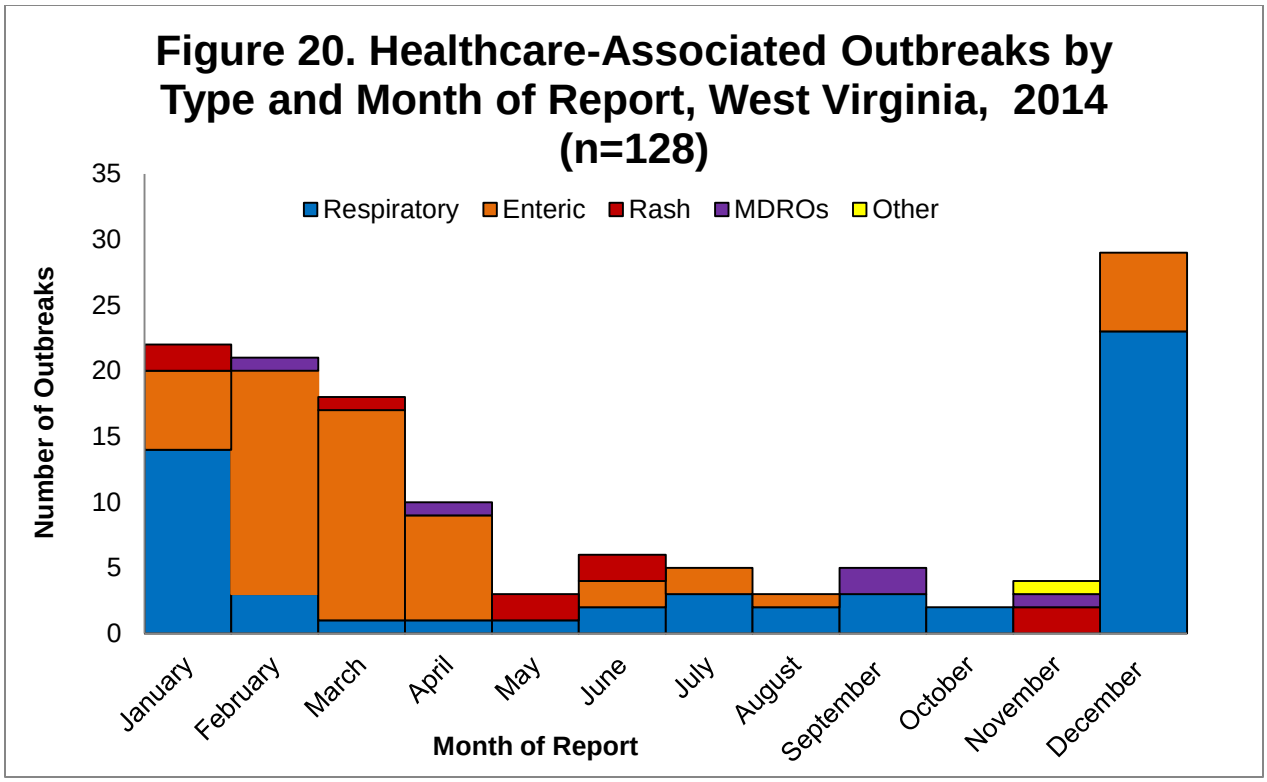


Enteric disease outbreaks accounted for the majority of HAOs (58, 45%) followed by respiratory disease outbreaks (55, 43%), rash illness outbreaks (7, 5%), MDRO outbreaks (7, 5%), and other outbreaks (1, 1%) (Table 26).

Table 26. Healthcare-Associated Outbreaks by Type of Outbreak, West Virginia, 2014

Outbreak Type	Number of Outbreaks (n=128)	Percent
Enteric	58	45
Respiratory	55	43
Rash	7	5
MDROs	7	5
Other	1	1

As observed in previous years, a seasonal trend was observed in 2014 showing an increase in HAOs during the colder months of the year. This can be attributed to increased circulation of influenza virus and norovirus during this time of the year (Figure 20).



Healthcare-Associated Enteric Disease Outbreaks:

Enteric disease outbreaks (58) (45%) were the most common disease outbreak type reported in healthcare facilities in 2014. The majority of healthcare-associated enteric disease outbreaks were norovirus gastroenteritis followed by acute gastroenteritis (Table 27).

Most enteric disease outbreaks were reported in LTCFs (49) followed by ALFs (4), hospitals (3), rehabilitation centers (2), and a hospital (1) (Table 28). Forty-two (42) healthcare-associated enteric disease outbreaks were laboratory confirmed, 10 did not have laboratory testing done and 5 had negative or non-contributory laboratory testing.

One (1) rotavirus outbreak was reported from a hospital specialty unit. Two cases were reported initially. Hospital staff implemented appropriate control measures. No further cases were identified. Attack rate was 8%.

Table 27. Healthcare-Associated Enteric Disease Outbreaks by Clinical Syndrome/Etiologic Agent, West Virginia, 2014

Clinical Syndrome/Etiologic Agent	Number of Outbreaks (n=58)	Percent
Norovirus Gastroenteritis	42	72
Acute Gastroenteritis	15	26
Rotavirus Gastroenteritis	1	2

Table 28. Healthcare-Associated Enteric Disease Outbreaks by Facility Type, West Virginia, 2014

Facility Type	Number of Outbreaks (n=58)	Percent
LTCFs	49	84
ALFs	4	7
Hospitals	3	5
Rehabilitation Facilities	2	4

Healthcare-Associated Respiratory Disease Outbreaks:

Respiratory disease outbreaks (55) (43%) were the second most common disease outbreak type reported in healthcare facilities. The majority of healthcare-associated respiratory disease outbreaks were influenza outbreaks (Table 29). Eight (8) influenza outbreaks from LTCFs were caused by 2009 influenza A H1N1. Historically H1NI disproportionately affect younger populations. Since the 2009 pandemic, this is the first year to report 8 outbreaks of 2009 influenza A H1N1 in LTCFs in West Virginia.

Fifty (50, 91%) respiratory outbreaks were reported in LTCFs, 4 (7%) were reported in ALFs and 1 (2%) reported in a rehabilitation center. Details on healthcare-associated respiratory disease outbreaks are discussed in the Respiratory Disease Outbreaks Section.

Table 29. Healthcare-Associated Respiratory Disease Outbreaks by Clinical Syndrome/Etiologic Agent, West Virginia, 2014

Clinical Syndrome/Etiologic Agent	Number of Outbreaks (n=55)	Percent
Influenza A (no subtyping)	13	24
Rhinovirus	9	16
Influenza A H1N1	8	15
Influenza AH3	6	11
Influenza (no typing)	6	11
Acute Respiratory Syndrome	4	7
Human Metapneumovirus	3	4
Influenza-Like Illness	2	3
Influenza A and B	1	2
Influenza B	1	2
Parainfluenza 3 Virus	1	2
Parainfluenza/ Rhinovirus	1	2

Healthcare-Associated Rash Illness Outbreaks:

There were 7 (5%) rash illness outbreaks reported from healthcare facilities in 2014. Seven (7, 100%) of rash illness outbreaks were due to scabies. Six (6, 86%) were reported in LTCFs and 1 (14%) was reported in an ALF. Only 1 scabies outbreak was lab confirmed and the remaining 6 were confirmed by clinical diagnosis.

Other Healthcare-Associated Outbreaks:

One (1) HAOs, categorized as "Other," was reported in November 2014 (Table 28). A cluster of potential healthcare-associated hepatitis C infections was investigated. A total of 6 case-patients including 1 acute and 5 past or present hepatitis C infection were identified. Several outpatient facilities were investigated. This investigation is still ongoing with assistance from CDC.

Healthcare-Associated Multidrug-Resistant Organism (MDRO) Outbreaks

MDROs are defined as microorganisms, predominantly bacteria, that are resistant to one or more classes of antimicrobial agents. MDRO outbreaks are defined as an increase in the number of MDRO cases above and beyond the endemic level (baseline level) in certain facility/unit in a specific time period. MDROs represent a major public health threat in the United States and West Virginia. These bacteria can spread rapidly and are associated with high morbidity and mortality rates due to limited options for treatment.

In 2014, there were 7 MDRO outbreaks reported by 6 counties in the 6 surveillance regions (Figure 21). Four (4) outbreaks were reported from LTCFs and 3 from acute care facilities. Table 30 depicts MDRO outbreak by etiologic agent.

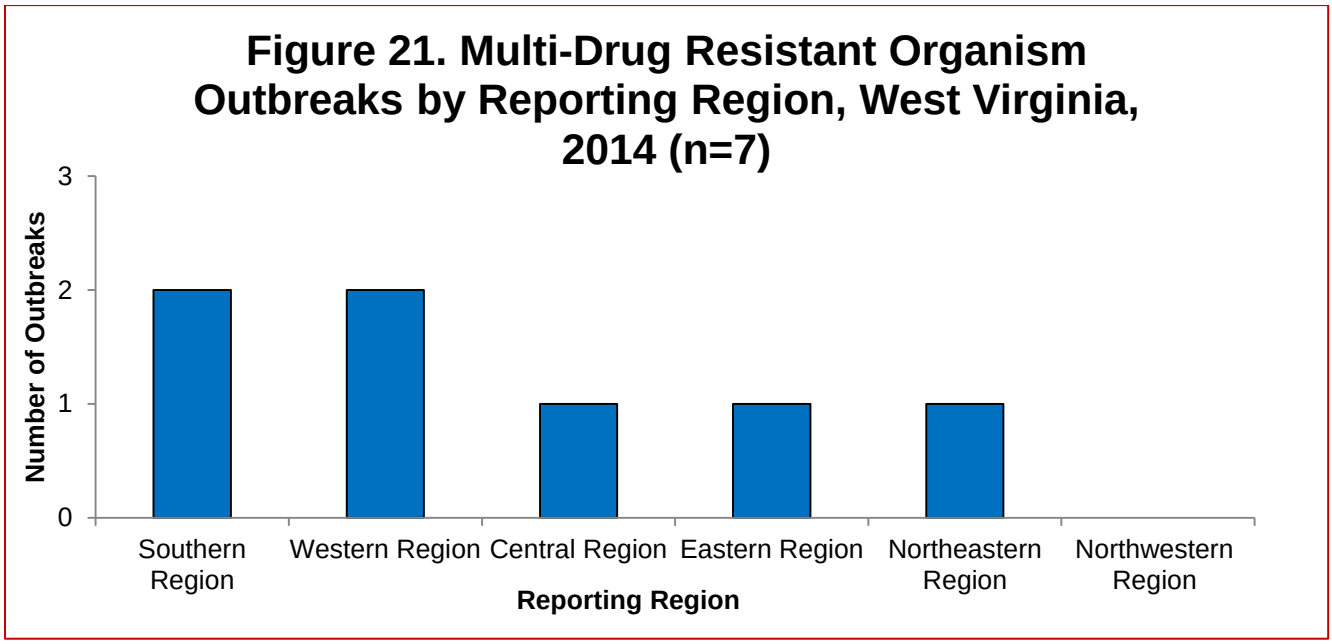


Table 30. Healthcare-Associated MDRO Outbreaks by Etiologic Agent, West Virginia, 2014

Etiologic Agent	Number of Outbreaks (n=7)	Percent
***Clostridium difficile* Infection (CDI)**	3	43
Carbapenem-Resistant *Enterobacteriaceae* (CRE)	1	14
MDR-*Acinetobacter baumannii*	1	14
Extended-Spectrum Beta-Lactamase-producing *Escherichia coli*	1	14
MRSA	1	14

Carbapenem-Resistant *Enterobacteriaceae* (CRE):

DIDE, in collaboration with the regional epidemiologist and the LHD, established periodic regional meetings with the infection preventionists (IPs) from acute care and LTCFs in one region in response to an ongoing outbreak of CRE. The main objective of these periodic meetings was to establish and maintain a regional approach to control and prevent the spread of CRE and other MDROs in the region. While reviewing the data from acute care hospitals for this meeting, a new cluster of CRE was identified in a LTCF. While 22 case-patients were identified retrospectively between 2012 and 2013, only 4 were detected during 2014. A site visit to the facility revealed good infection control practices. Recommendations were provided to the facility and a follow-up site visit was conducted by the regional epidemiologist.

***Clostridium difficile* Infection (CDI):**

Three (3) outbreaks of CDI were reported in 2014. The first was reported in a LTCF. A total of 18 case-patients were identified between April 1, 2014 and June 30, 2014 with an attack rate of 15%. Of the 18 cases, 11 (61%) were LTCF associated as per National Healthcare Safety Network (NHSN) definition. A site visit to the facility was completed by the LHD to review infection control practices and provide recommendations to the facility. No additional cases were identified.

The second CDI outbreak was reported in an acute care facility specialty unit. A site visit to the facility was completed by DIDE in collaboration with the LHD. The investigation revealed that small clusters of CDI may be occurring against a background of endemic CDI. The facility has shown leadership in dealing with this issue; implementing appropriate and timely control measures. Recommendations were shared

with the facility to assist in decreasing in the incidence of endemic CDI, and in turn, other healthcare associated infections.

The third outbreak was reported in a LTCF. A total of 11 case-patients were identified between September 1, 2014 and December 31, 2014 with an attack rate of 7%. Of the 11 cases, 8 (73%) were LTCF associated as per a NHSN definition. No additional cases were identified after the facility enhanced the infection control measures, particularly hand hygiene, contact precautions and environmental cleaning.

MDR-*Acinetobacter baumannii:*

A small cluster of 4 case-patients diagnosed with multi-drug resistant *Acinetobacter baumannii* (MDR-Ab) was detected in an acute care facility. Three (3) case-patients were facility associated. The facility immediately enhanced infection control measures. No additional cases were reported.

Extended-Spectrum Beta-Lactamase-producing *Escherichia coli* (ESBL-EC):

In February 2014, a cluster of 2 case-patients diagnosed with CRE infection in an acute care hospital specialty unit was reported. The facility immediately implemented appropriate infection control measures with assistance from the LHD. A point prevalence surveillance culture of all patients in this unit and the adjacent unit was done. A total of 43 clinical and screening cultures were performed and 9 cultures were positive for CRE at the hospital laboratory. Of the 9 CRE positive cultures, 7 were sent for confirmation and molecular typing at CDC laboratory. CDC laboratory confirmed that all the 7 isolates were sensitive to Carbapenem and considered ESBL-EC not CRE. PFGE testing concluded that all isolates were not matched genetically which ruled out a common source hypothesis and suggested that there was no ongoing transmission in the unit as originally thought. The hospital laboratory reviewed their practices for performing antimicrobial sensitivity. This outbreak underscores the importance of timely and accurate laboratory results during an outbreak investigation.

Methicillin-resistant *Staphylococcus aureus* (MRSA):

A cluster of 3 case-patients diagnosed with MRSA infections were reported from a LTCF. Two (2) case-patients had urinary tract infections and had positive urine cultures for MRSA. The third case-patient had pneumonia and MRSA was isolated from the sputum. All 3 cases were facility associated as per NHSN definition. The facility implemented appropriate control measures with assistance from the LHD and no additional cases were identified.

Findings and Recommendations

DIDE Recommendations:

There has been remarkable improvement in recognition and reporting of outbreaks in West Virginia over the last decade. This improvement can be attributable to strengthened public health infrastructure, increased awareness among healthcare providers and public health staff, and training and education. Despite this marked progress, there are still opportunities for improvement. The following summarizes the findings and provides recommendations.

Findings and Recommendations for LHDs:

1. According to the West Virginia Reportable Disease Rules implemented in August 2013, outbreaks are immediately reportable in West Virginia to LHDs regardless of outbreak setting. LHDs should report outbreaks to the BPH, DIDE within 60 minutes of being notified. Immediate reporting improves the outbreak response by facilitating laboratory testing for diagnosis, implementing control measures in a timely manner, and preventing further illnesses or deaths. It also facilitates communication with CDC and other partners on critical health issues.
2. The role of laboratory testing is crucial in outbreak management. OLS continues to add advanced testing technology to assist in early detection and investigation of outbreaks. Timely collection of specimens facilitates diagnosis and institution of control measures. One of the outbreak performance measures for LHDs is to attempt to collect appropriate specimens during at least 90% of reported respiratory disease outbreaks and 100% of reported foodborne outbreaks.
3. Strengthen relationships and maintain an open dialogue with acute and LTCFs' Infection Preventionists (IPs) and school nurses.
4. Consult with the regional epidemiologist in outbreak investigations. Regional epidemiologist's participation in outbreak investigations is considered a performance measure by several funding sources.
5. DIDE recommends using disease-specific outbreak toolkits. DIDE has developed several outbreak toolkits for the most commonly encountered outbreaks. Toolkits can be accessed online at http://www.dhhr.wv.gov/oeps/disease/ob/Pages/OutbreakToolkits.aspx.
6. Be prepared for influenza outbreaks in schools and LTCFs. Consider the following recommendations:
    - Recruit and maintain a functional sentinel provider.
    - Identify a healthcare provider/facility to assist in collecting specimens from schools in outbreak situations.
    - Influenza vaccination is the best preventive measure.
    - Keep 5 influenza testing kits in the health department throughout the year with current expiration dates.
    - Consider communicating with and educating school nurses and LTCFs IPs during the pre-influenza season.

7. Share DIDE's weekly influenza activity report and monthly outbreak report with partners in a timely manner.
8. As a requirement for threat preparedness funding, the LHDs are required to complete a final outbreak report for each outbreak. Consider using outbreak specific templates provided by DIDE. Templates can be accessed at: http://www.dhhr.wv.gov/oeps/disease/ob/pages/outbreakfinalreports.aspx. Outbreak reports should be shared with DIDE and other stakeholders within 30 days of closing the outbreak.
9. Underreporting regions and counties (Table 4) consider: a) work with your regional epidemiologist to improve outbreak reporting; b) communicate with your healthcare providers, IPs and school nurses and provide education on identifying and reporting outbreaks; and c) identify and communicate training needs among your staff, regional epidemiologist, and DIDE.

Findings and Recommendations for LTCFs:

1. Outbreaks should be reported immediately to LHDs according to the West Virginia Reportable Disease Rule that became effective August 2013.
2. LTCFs continue to account for the majority of HAOs reported in the State. These outbreaks are occasionally severe and associated with high morbidity and mortality rates.
3. Dedicate, train, and maintain a designated IPs in the facility at all times.
4. For influenza and other respiratory outbreaks, use the disease specific outbreak toolkits available online at: http://www.dhhr.wv.gov/oeps/disease/ob/Pages/OutbreakToolkits.aspx.
5. Maintain standing orders for influenza vaccination, testing, and prophylaxis.
6. In MDRO outbreaks, LTCF residents may act as reservoirs for MDROs and facilitate transmission of these infections across the spectrum of healthcare. Additionally, some LTCFs contract with either out-of-state or in-state laboratories that do not test or test and do not report MDRO status to these facilities. This represents a major challenge for these facilities to identify and manage MDRO outbreaks. DIDE recommendations to manage MDRO outbreaks can be found at: http://www.dhhr.wv.gov/oeps/disease/ob/pages/mdro-outbreaks-ltcf.aspx.
7. LTCFs should maintain an open dialogue with their LHD and regional epidemiologist. Consider contacting your LHD after hiring a new IP.
8. Provide facility-wide education on hand hygiene and transmission based precaution. Routinely monitor for compliance. Useful resources can be found on http://www.dhhr.wv.gov/oeps/disease/HAI/Pages/default.aspx.
9. Provide facility-wide education on antimicrobial resistance and appropriate use at least once a year.

Findings and Recommendations for Acute Care Hospitals and Outpatient Clinics:

1. Outbreaks should be reported immediately to LHDs according to the West Virginia Reportable Disease Rule that became effective August 2013.

2. DIDE can provide assistance, expertise, and laboratory support, if needed, to investigate outbreaks in acute care facilities. DIDE also works closely with the CDC in investigating complicated HAOs.
3. Acute care hospital laboratories should review their practices and follow the updated Clinical and Laboratory Standards Institute (CLSI) guidelines.
4. OLS can provide molecular analysis of certain bacterial isolates for the purpose of MDRO outbreak investigation.
5. Refer to DIDE healthcare-associated outbreak protocol on the website at: http://www.dhhr.wv.gov/oeps/disease/hai/documents/hai-protocol.pdf.
6. Maintain an up-to-date vaccination record of all healthcare workers including those who are not employed by but have privileges in the facility.
7. Provide routine education on appropriate infection control practices, including hand hygiene and transmission-based precautions and monitor for compliance.
8. Develop a multidisciplinary approach for outbreak investigations.
9. Make sure your laboratory is following the most updated guidelines for MDROs detection.
10. Provide facility-wide education on safe injection practices and antimicrobial resistance and appropriate use at least once a year.

DIDE's Objectives:

The following are objectives completed in 2014, ongoing objectives, and new objectives in 2015 and beyond:

1. DIDE continues to improve feedback of information on outbreaks and outbreak investigations. In addition to the yearly outbreak report, DIDE continues to release a monthly outbreak report. The monthly reports are also posted on the website at: http://www.dhhr.wv.gov/oeps/disease/ob/Pages/default.aspx.
2. DIDE will continue to participate in electronic reporting of all enteric outbreaks in the National Outbreak Reporting System (NORS).
3. DIDE will collaborate with the Office of Environmental Health Services and other stakeholders to update the foodborne disease outbreak manual in 2015. DIDE will provide 3 regional trainings on the updated manual during 2015-2016 fiscal year.
4. OLS implemented the use of FilmArray Gastrointestinal panel in foodborne disease outbreaks. This testing methodology uses PCR to test for several enteric viruses, bacteria, and parasites in a short time. Criteria for testing will be included in the updated foodborne disease outbreak manual.
5. DIDE will provide the annual "Best Outbreak" training to the state, regional and local public health personnel and IPs.
6. In 2015, DIDE will provide 6 regional trainings to public health staff, emergency medical services, and IPs on Ebola outbreak response. Additionally, DIDE continues to provide guidelines and up-to date guidance from CDC to healthcare providers and IPs statewide on Ebola preparedness.
7. DIDE will assist underreporting regions and counties to identify their training needs and provide training as necessary.

8. DIDE, in collaboration with the LHDs, continues to monitor returned travelers from Ebola impacted countries using CDC guidelines.
9. Healthcare-Associated Outbreaks:
    - In response to several outbreaks in West Virginia over the last few years that were related to unsafe injection practices, DIDE collaborated with CDC and provided education and training materials on safe injection practices including posters, flyers, and other resources from The One and Only Campaign.
    - According to the CDC, West Virginia continues to be among the states with the highest antibiotics prescribing rates. DIDE has been and will continue to work with the CDC to provide education and training materials on antimicrobial resistance and appropriate use.
    - OLS continues to provide molecular typing of MDROs during outbreaks.
    - The findings from this report will be presented to the Healthcare Associated Infections (HAI) Multidisciplinary Advisory Group as well as WV Association for Professionals in Infection Control and Epidemiology (APIC) section as a part of annual needs assessment.
    - DIDE continues to make resources available for state and regional epidemiologists to attend national trainings and conferences in HAIs and HAOs.
    - DIDE will develop and share West Virginia's first annual Carbapenem-resistant *Enterobacteriaceae* (CRE) surveillance report with stakeholders during the second half of 2015.
    - CDC Ebola supplementary grant award will allow DIDE to hire staff to conduct statewide healthcare facility infection control assessment including outbreak reporting assessment.
    - DIDE will host a summer intern to assist with healthcare associated outbreak response and a physician survey regarding antimicrobial use.

Appendix: Summary of Confirmed Outbreaks, 2014, West Virginia (n=186)

Outbreak Number	Date and Time Reported to LHD	Date and Time Reported to State	Elapsed Time in Minutes	Region	Jurisdiction	Clinical Diagnosis	Etiologic Agent	Final Case Count	Labs	Transmission	Modes of Transmission or Source of Illness
1	1/4/2014 10:30	1/4/2014 11:15	45	Central Region	WV	Influenza	Influenza A	Residents 8/90 (AR 9%) Staff 5/112 (AR 5%)	Rapid test positive	LTCF	Person to Person
2	1/6/2014 9:30	1/6/2014 11:21	111	Southern Region	WV	Influenza	Influenza A and B	Residents 1/58 (AR 2%) Staff 2/110 (AR 2%)	Rapid test positive	LTCF	Person to Person
3	1/7/2014 9:49	1/7/2014 12:00	131	Northwest Region	WV	Acute Respiratory Syndrome	Human Metapneumo-virus	Residents 13/47 (AR 27%)	Lab Confirmed	LTCF	Person to Person
5	1/8/2014 8:45	1/8/2014 9:13	28	Southern Region	WV	Influenza	Influenza A H1N1	Residents 5/59 (AR 9%) Staff 4/120 (AR 3%)	Lab Confirmed	LTCF	Person to Person
6	1/8/2014 15:30	1/8/2014 16:00	30	Central Region	WV	Influenza	Influenza A H1N1	Residents 8/88 (AR 9%) Staff 5/110 (AR 5%)	Lab Confirmed	LTCF	Person to Person
7	1/9/2014 13:00	1/9/2014 13:10	10	Northwest Region	WV	Influenza	Influenza	Residents 7/105 (AR 7%) Staff 37/137 (AR 27%)	Rapid test positive	LTCF	Person to Person
8	1/10/2014 22:19	1/9/2014 16:40	1779	Eastern Region	WV	Influenza	Influenza A H1N1	Inmates 32/240 (13.3%)	Lab Confirmed	Correctional Facility	Person to Person
10	1/13/2014 11:43	1/13/2014 11:48	5	Northeast Region	WV	Norovirus Gastroenteritis	Norovirus G II	Residents 37/84 (AR 44%) Staff 22/109 (AR 20%)	Lab Confirmed	LTCF	Person to Person
11	1/13/2014 10:15	1/13/2014 11:00	45	Central Region	WV	Acute Respiratory Syndrome	Human Metapneumo-virus	Residents 27/57 (AR 47%) Staff 14/80 (AR 18%)	Lab Confirmed	LTCF	Person to Person
12	1/13/2014 10:30	1/13/2014 13:46	196	Eastern Region	WV	Pertussis	Pertussis	Cases 3	Lab Confirmed	Community	Person to Person

Outbreak Number	Date and Time Reported to LHD	Date and Time Reported to State	Elapsed Time in Minutes	Region	Jurisdiction	Clinical Diagnosis	Etiologic Agent	Final Case Count	Labs	Transmission	Modes of Transmission or Source of Illness
13	1/15/2014 10:40	1/15/2014 10:45	5	Northwest Region	WV	Norovirus Gastroenteritis	Norovirus G I	Residents 47/100 (AR 47%) Staff 52	Lab Confirmed	LTCF	Person to Person
14	1/15/2014 16:30	1/16/2014 9:00	990	Northwest Region	WV	Acute Respiratory Syndrome	Human Metapneumo-virus	Residents 19/73 (26%) Staff 12/62 (19 %)	Lab Confirmed	LTCF	Person to Person
15	1/16/2014 11:00	1/16/2014 12:00	60	Northwest Region	WV	Scabies	Undetermined	Residents 12/55 (AR 22%) Staff 1/80 (2%)	Lab Confirmed	LTCF	Person to Person
16	1/16/2014 11:00	1/16/2014 12:15	75	Eastern Region	WV	Influenza	Influenza A	Residents 7/62 (AR 11%)	Rapid test positive	LTCF	Person to Person
17	1/16/2014 15:00	1/16/2014 16:00	60	Eastern Region	WV	Influenza	Influenza A H1N1	Inmates 29/1185 (AR 2%)	Lab Confirmed	Correctional Facility	Person to Person
18	1/21/2014 10:33	1/21/2014 10:38	5	Northwest Region	WV	Influenza	Influenza A H1N1	Residents 23/68 (AR 34%)	Lab Confirmed	LTCF	Person to Person
19	1/22/2014 15:00	1/22/2014 15:50	50	Southern Region	WV	Influenza-Like Illness	Undetermined	Residents 40/53 (AR 75%) Staff 10/70 (AR 14%)	Lab negative	LTCF	Person to Person
21	1/24/2014 10:00	1/24/2014 10:25	25	Multiple	WV	Herpes Gladiatorum	Herpes Gladiatorum	Players on Multiple Teams 17	Lab Confirmed	Sports Team	Person to Person
22	1/27/2014 9:00	1/27/2014 10:00	60	Eastern Region	WV	Influenza	Influenza A H1N1	Residents 17/108 (AR 16%) Staff 14/179 (AR 8%)	Lab Confirmed	LTCF	Person to Person
23	1/27/2014 11:52	1/27/2014 12:15	23	Northwest Region	WV	Norovirus Gastroenteritis	Norovirus	Residents 51/96 (AR 54%) 29 Staff	Lab Confirmed	LTCF	Person to Person
24	1/28/2014 9:40	1/28/2014 9:54	14	Northeast Region	WV	Norovirus Gastroenteritis	Norovirus G II	Patients 1/189 (AR 1%) Staff 8/2500 (AR 0.3%)	Lab Confirmed	Hospital	Person to Person

Outbreak Number	Date and Time Reported to LHD	Date and Time Reported to State	Elapsed Time in Minutes	Region	Jurisdiction	Clinical Diagnosis	Etiologic Agent	Final Case Count	Labs	Transmission	Modes of Transmission or Source of Illness
26	1/9/2014 13:00	1/9/2014 13:10	10	Northwest Region	WV	Acute Gastroenteritis	Undetermined	Residents 7 Staff 10	Lab test negative	LTCF	Person to Person
27	1/30/2014 13:35	1/30/2014 13:45	10	Northwest Region	WV	Norovirus Gastroenteritis	Norovirus G I	Residents 53/123 (AR 42%) Staff 47/178 (AR 26%)	Lab Confirmed	LTCF	Person to Person
28	1/27/2014 11:15	1/27/2014 11:45	30	Northeast Region	WV	Campylobacter Gastro enteritis	Campylo-bacter jejuni	WV Residents 6	Lab Confirmed	Community	Point Source
29	1/30/2014 16:30	1/31/2014 9:30	1020	Western Region	WV	Scabies	Undetermined	Residents 5/16 (AR 31%)	Lab test not done	Assisted Living	Person to Person
30	1/31/2014 14:50	1/31/2014 15:15	25	Central Region	WV	Influenza	Influenza A	Residents 10/118 (AR 9%) Staff 6/116 (AR 5%)	Rapid test positive	LTCF	Person to Person
31	2/4/2014 8:55	2/4/2014 9:05	10	Southern Region	WV	Norovirus Gastroenteritis	Norovirus G II	Residents 38/81 (AR 47%)	Lab Confirmed	LTCF	Person to Person
32	2/5/2014 14:00	2/5/2014 14:25	25	Northwest Region	WV	Norovirus Gastroenteritis	Norovirus	Residents 24/46 (AR 52%) Staff 12/28 (AR 43%)	Lab Confirmed	Assisted Living	Person to Person
33	1/29/2014 15:30	1/29/2014 16:00	30	Southern Region	WV	Influenza-Like Illness	Undetermined	Residents 10/80 (AR 13%)	Lab test not done	LTCF	Person to Person
34	2/6/2014 12:15	2/6/2014 12:30	15	Central Region	WV	Norovirus Gastroenteritis	Norovirus G II	Residents 58/118 (AR 49%) Staff 45/116 (AR 39%)	Lab Confirmed	LTCF	Person to Person
35	2/7/2014 8:50	2/7/2014 9:15	25	Central Region	WV	Influenza	Influenza A H1N1	Residents 8/90 (AR 9%) Staff 2/94 (AR 2%)	Lab Confirmed	LTCF	Person to Person

Outbreak Number	Date and Time Reported to LHD	Date and Time Reported to State	Elapsed Time in Minutes	Region	Jurisdiction	Clinical Diagnosis	Etiologic Agent	Final Case Count	Labs	Transmission	Modes of Transmission or Source of Illness
37	2/10/2014 9:07	2/10/2014 9:10	3	Northeast Region	WV	Norovirus Gastroenteritis	Norovirus	Residents 30/119 (AR 21%) Staff 14/142 (AR 10%)	Lab Confirmed	LTCF	Person to Person
38	2/11/2014 10:25	2/11/2014 10:35	10	Southern Region	WV	Norovirus Gastroenteritis	Norovirus G I	Residents 40/60 (AR 67%) Staff 25/28 (32%)	Lab Confirmed	LTCF	Person to Person
39	2/11/2014 14:00	2/11/2014 15:45	105	Western Region	WV	Scabies	Undetermined	Cases 13	Lab test not done	Community	Point Source
40	2/12/2014 10:30	2/12/2014 11:00	30	Northwest Region	WV	Acute Gastroenteritis	Undetermined	Highest absentee rate 20%	Lab test not done	School	Person to Person
41	2/12/2014 11:30	2/12/2014 12:00	30	Northwest Region	WV	Acute Gastroenteritis	Undetermined	Residents 4/105 (AR 4%)	Lab test not done	LTCF	Person to Person
42	2/14/2014 8:30	2/14/2014 8:50	20	Central Region	WV	Influenza	Influenza A H1N1	Residents 1/87 (AR 1%) Staff 2/146 (AR 2%)	Lab Confirmed	LTCF	Person to Person
43	2/17/2014 12:00	2/17/2014 12:15	15	Central Region	WV	Rotavirus Gastroenteritis	Rotavirus	Patients 2/25 (AR 8%)	Lab Confirmed	Hospital	Undeter-mined
44	2/13/2014 16:30	2/18/2014 11:30	6900	Northeast Region	WV	Norovirus Gastroenteritis	Norovirus G II	Residents 36/108 (AR 33%) Staff 33/125 (AR 26%)	Lab Confirmed	LTCF	Person to Person
45	2/18/2014 11:30	2/18/2014 12:10	40	Southern Region	WV	Norovirus Gastroenteritis	Norovirus G I	Residents 16/113 (AR 14%) Staff 26/150 (AR 17%)	Lab Confirmed	Assisted Living	Person to Person
46	2/24/2014 9:20	2/24/2014 9:59	39	Central Region	WV	Multiple Clinical Diagnoses	ESBL Enterobacter cloacae	Cases 9	Lab Confirmed	Hospital	Person to Person
47	2/25/2014 15:00	2/25/2014 16:00	60	Northwest Region	WV	Norovirus Gastroenteritis	Norovirus G I	Residents 32/52 (AR 62%) Staff 29	Lab Confirmed	LTCF	Person to Person

Outbreak Number	Date and Time Reported to LHD	Date and Time Reported to State	Elapsed Time in Minutes	Region	Jurisdiction	Clinical Diagnosis	Etiologic Agent	Final Case Count	Labs	Transmission	Modes of Transmission or Source of Illness
48	2/26/2014 10:45	2/26/2014 11:10	25	Northeast Region	WV	Norovirus Gastroenteritis	Norovirus	Residents 39/70 (AR 54%) Staff 38/325 (AR 12%)	Lab Confirmed	LTCF	Person to Person
49	2/27/2014 9:10	2/27/2014 9:30	20	Eastern Region	WV	Norovirus Gastroenteritis	Norovirus G II	Residents 31/108 (AR 29%) Staff 37/179 (AR 21%)	Lab Confirmed	LTCF	Person to Person
50	2/27/2014 10:30	2/27/2014 11:10	40	Southern Region	WV	Acute Gastroenteritis	Undetermined	Residents 62/107 (AR 58%) and Staff 31/80 (AR 39%)	Lab test negative or noncontri-butory	LTCF	Person to Person
51	2/27/2014 10:40	2/27/2014 11:19	39	Southern Region	WV	Acute Gastroenteritis	Undetermined	Highest Absentee Rate 24%	Lab test not done	School	Person to Person
52	2/28/2014 7:50	2/28/2014 8:30	40	Northwest Region	WV	Norovirus Gastroenteritis	Norovirus	Residents 38/64 (AR 59%) Staff 8	Lab Confirmed	LTCF	Person to Person
53	2/28/2014 9:10	2/28/2014 9:25	15	Southern Region	WV	Norovirus Gastroenteritis	Norovirus G II	Residents 72/146 (AR 49%) Staff 61/214 (AR 29%)	Lab Confirmed	LTCF	Person to Person
54	2/28/2014 11:10	2/28/2014 11:30	20	Northwest Region	WV	Norovirus Gastroenteritis	Norovirus G II	Residents 43/187 (AR 23%) Staff 34/135 (AR 25%)	Lab Confirmed	LTCF	Person to Person

Outbreak Number	Date and Time Reported to LHD	Date and Time Reported to State	Elapsed Time in Minutes	Region	Jurisdiction	Clinical Diagnosis	Etiologic Agent	Final Case Count	Labs	Transmission	Modes of Transmission or Source of Illness
55	3/3/2014 10:00	3/3/2014 10:45	45	Northeast Region	WV	Norovirus Gastroenteritis	Norovirus G II	Residents 23/150 (13%) Staff 19/65 (AR 17%)	Lab Confirmed	Assisted Living	Person to Person
56	3/5/2014 15:30	3/5/2014 15:52	22	Central Region	WV	Norovirus Gastroenteritis	Norovirus G I	Residents 17/89 AR(20%) Staff 13/132) AR 10%)	Lab Confirmed	LTCF	Person to Person
57	3/5/2014 15:15	3/5/2014 15:35	20	Southern Region	WV	Fifth Disease	Undetermined	Students 5/630 (AR 1%)	Lab test not done	School	Person to Person
58	3/6/2014 16:00	3/7/2014 14:00	1320	Northwest Region	WV	Norovirus Gastroenteritis	Norovirus G II	Residents 32/56 (AR 57%) Staff 20/48 (AR 42%)	Lab Confirmed	LTCF	Person to Person
59	3/7/2014 14:52	3/7/2014 15:02	10	Northeast Region	WV	Norovirus Gastroenteritis	Norovirus G II	Residents 8/87 (AR 9%) Staff 5/110 (AR 5%)	Lab Confirmed	LTCF	Person to Person
60	3/10/2014 9:30	3/10/2014 9:45	15	Northeast Region	WV	Norovirus Gastroenteritis	Norovirus	Residents 36/85 (AR 36%) Staff 23/130 (AR 18%)	Lab Confirmed	LTCF	Person to Person
61	3/11/2014 16:01	3/11/2014 15:45	16	Northwest Region	WV	Influenza	Influenza A H1N1	Residents 5/61 (AR 8%) Staff 2/83 (AR 2%)	Lab Confirmed	LTCF	Person to Person

Outbreak Number	Date and Time Reported to LHD	Date and Time Reported to State	Elapsed Time in Minutes	Region	Jurisdiction	Clinical Diagnosis	Etiologic Agent	Final Case Count	Labs	Transmission	Modes of Transmission or Source of Illness
62	3/11/2014 14:00	3/11/2014 15:50	110	Western Region	WV	Acute Gastroenteritis	Undetermined	Residents 20/97 (AR 21%) Staff 10/130 (AR 8%)	Lab test negative or noncontri-butory	LTCF	Person to Person
64	3/14/2014 12:30	3/14/2014 12:45	15	Northwest Region	WV	Norovirus Gastroenteritis	Norovirus G II	Residents 54/100 (AR 54%) Staff 15/134 (AR 12%)	Lab Confirmed	LTCF	Person to Person
65	3/17/2014 12:42	3/17/2014 12:50	8	Northwest Region	WV	Norovirus Gastroenteritis	Norovirus G II	Residents 22/34 (AR 65%)	Lab Confirmed	Rehab Facility	Person to Person
66	3/17/2014 12:00	3/17/2014 12:42	42	Northeast Region	WV	Norovirus Gastroenteritis	Norovirus G I	Residents 36/55 (AR 65%) Staff 5/85 (AR 6%)	Lab Confirmed	LTCF	Person to Person
67	3/18/2014 9:50	3/18/2014 10:05	15	Central Region	WV	Norovirus Gastroenteritis	Norovirus G II	Residents 32/90 (AR 36%) Staff 20/101 (AR 20%)	Lab Confirmed	LTCF	Person to Person
68	3/20/2014 8:00	3/20/2014 8:30	30	Central Region	WV	Norovirus Gastroenteritis	Norovirus G II	Residents 23/57 (AR 40%) and Staff 18/80 (AR 23%)	Lab Confirmed	LTCF	Person to Person
69	3/20/2014 8:30	3/20/2014 9:15	45	Northwest Region	WV	Norovirus Gastroenteritis	Norovirus G II	Residents 9/14 (AR 64%) Staff 1/22 (AR 5%)	Lab Confirmed	Hospital	Person to Person

Outbreak Number	Date and Time Reported to LHD	Date and Time Reported to State	Elapsed Time in Minutes	Region	Jurisdiction	Clinical Diagnosis	Etiologic Agent	Final Case Count	Labs	Transmission	Modes of Transmission or Source of Illness
70	3/24/2014 9:30	3/24/2014 10:00	30	Northeast Region	WV	Acute Gastroenteritis	Undetermined	Residents 13/38 (AR 34%) Staff 2/25 (AR 8%)	Lab test not done	LTCF	Person to Person
71	3/24/2014 15:30	3/24/2014 16:00	30	Central Region	WV	Norovirus Gastroenteritis	Norovirus G II	Residents 12/126 (AR 10%) Staff 2/116 (AR 2%)	Lab Confirmed	LTCF	Person to Person
72	3/25/2014 9:43	3/25/2014 9:48	5	Southern Region	WV	Norovirus Gastroenteritis	Norovirus G I	Residents 21/55 (AR 38%)	Lab Confirmed	LTCF	Person to Person
73	3/26/2014 10:00	3/26/2014 10:30	30	Central Region	WV	Scabies	Undetermined	Residents 4/90 (AR 4%)	Lab test not done	LTCF	Person to Person
74	3/28/2014 10:15	3/28/2014 10:40	25	Southern Region	WV	Acute Gastroenteritis	Undetermined	Students 30/209 (AR 14%)	Lab test not done	School	Person to Person
75	3/31/2014 9:30	3/31/2014 9:45	15	Northwest Region	WV	Norovirus Gastroenteritis	Norovirus G II	Residents 56/105 (AR 54%) Staff 23/140 (AR 16%)	Lab Confirmed	LTCF	Person to Person
78	3/31/2014 12:30	3/31/2014 14:30	120	Western Region	WV	Acute Gastroenteritis	Undetermined	Patrons 25	Lab test negative or noncontri-butory	Restaurant	Undeter-mined
80	4/1/2014 8:35	4/1/2014 8:46	11	Northwest Region	WV	Norovirus Gastroenteritis	Norovirus	Residents 31/132 (AR 24%)	Lab Confirmed	LTCF	Person to Person

Outbreak Number	Date and Time Reported to LHD	Date and Time Reported to State	Elapsed Time in Minutes	Region	Jurisdiction	Clinical Diagnosis	Etiologic Agent	Final Case Count	Labs	Transmission	Modes of Transmission or Source of Illness
81	4/2/2014 14:00	4/2/2014 14:23	23	Southern Region	WV	Norovirus Gastroenteritis	Norovirus G I and G II	Residents 18/60 (AR 30%) Staff 4/85 (AR 5%)	Lab Confirmed	LTCF	Person to Person
82	4/7/2014 13:00	4/7/2014 13:20	20	Central Region	WV	Norovirus Gastroenteritis	Norovirus G II	Residents 24/92 (AR 29%) Staff 11/99 (AR 11%)	Lab Confirmed	LTCF	Person to Person
83	4/7/2014 13:40	4/7/2014 16:10	150	Eastern Region	WV	Acute Gastroenteritis	Undetermined	Patrons 13	Lab test negative or noncontri-butory	Restaurant	Point Source
84	4/8/2014 9:30	4/8/2014 9:40	10	Northeast Region	WV	Norovirus Gastroenteritis	Norovirus G II	Residents 41/60 (AR 68%) Staff 18/80 (AR 23%)	Lab Confirmed	LTCF	Person to Person
85	4/9/2014 9:30	4/9/2014 10:20	50	Eastern Region	WV	Norovirus Gastroenteritis	Norovirus G II	Residents 24/103 (AR 23%) Staff 8/150 (AR 5%)	Lab Confirmed	LTCF	Person to Person
86	4/9/2014 14:35	4/9/2014 11:30	185	Multiple	Other State	Acute Gastroenteritis	Undetermined	Total cases 21 including 9 WV residents	Lab test negative or noncontrib utory	Camp	Person to Person
88	4/11/2014 10:48	4/11/2014 10:42	6	Western Region	WV	Multiple Clinical Diagnoces	MDR Acinetobacter baumanii	Cases 4	Lab Confirmed	Hospital	Person to Person

Outbreak Number	Date and Time Reported to LHD	Date and Time Reported to State	Elapsed Time in Minutes	Region	Jurisdiction	Clinical Diagnosis	Etiologic Agent	Final Case Count	Labs	Transmission	Modes of Transmission or Source of Illness
90	4/14/2014 10:43	4/14/2014 10:48	5	Northwest Region	WV	Acute Gastroenteritis	Undetermined	Residents 23/63 (AR 37%)	Lab test not done	LTCF	Person to Person
91	4/14/2014 11:00	4/14/2014 11:05	5	Northeast Region	WV	Norovirus Gastroenteritis	Norovirus G II	Residents 30/57 (AR 52%) Staff 11/60 (AR 18%)	Lab Confirmed	LTCF	Person to Person
92	4/15/2014 9:25	4/15/2014 9:35	10	Northwest Region	WV	Norovirus Gastroenteritis	Norovirus G II	Residents 13/35 (AR 37%)	Lab Confirmed	Rehab Facility	Person to Person
94	4/29/2014 8:30	4/29/2014 8:45	15	Northeast Region	WV	Influenza	Influenza B	Residents 9/138 (AR 7%) Staff 5/50 (AR 10%)	Lab Confirmed	Assisted Living	Person to Person
96	4/23/2014 9:00	4/22/2014 15:00	1080	Multiple	CDC	Salmonellosis	Salmonella	Cases 363 nationwide including 18 WV residents	Lab Confirmed	Community	Other
97	5/8/2014 15:30	5/8/2014 16:20	50	Eastern Region	WV	Scabies	Undetermined	Residents 12/59 (AR 20%)	Lab test not done	LTCF	Person to Person
98	5/15/2014 14:45	5/15/2014 15:00	15	Northwest Region	WV	Acute Respiratory Syndrome	Rhinovirus	Residents 6/22 (AR 27%) Staff 1/15 (AR 7%)	Lab Confirmed	LTCF	Person to Person
99	5/21/2014 10:30	5/21/2014 11:00	30	Northwest Region	WV	Streptococcus Pharyngitis	Group A Streptococcus (GAS)	Students 8 and Staff 1	Lab Confirmed	School	Person to Person

Outbreak Number	Date and Time Reported to LHD	Date and Time Reported to State	Elapsed Time in Minutes	Region	Jurisdiction	Clinical Diagnosis	Etiologic Agent	Final Case Count	Labs	Transmission	Modes of Transmission or Source of Illness
100	5/27/2014 13:00	5/27/2014 13:17	17	Central Region	WV	Hand Foot and Mouth Disease	Undetermined	Attendees 12/47 (AR 26%)	Lab test not done	Daycare	Person to Person
101	5/30/2014 0:00	5/30/2014 15:30	930	Southern Region	WV	Scabies	Undetermined	Residents 2/54 (AR 4%) Staff 2/89 (AR 2%)	Lab test not done	LTCF	Person to Person
102	6/3/2014 14:00	6/3/2014 13:30	30	Southern Region	WV	Multiple Clinical Diagnoses	CRE	Residents 4 in 2014 and 22 since 2012	Lab Confirmed	LTCF	Person to Person
103	6/3/2014 12:00	6/3/2014 12:16	16	Central Region	WV	Acute Respiratory Syndrome	Parainfluenza 3 Virus	Residents 6/25 (AR 24%)	Lab Confirmed	LTCF	Person to Person
104	6/5/2014 9:20	6/5/2014 9:23	3	Northeast Region	WV	Norovirus Gastroenteritis	Norovirus	Residents 9/129 (AR 7%) Staff 20/142 (AR 14%)	Lab Confirmed	LTCF	Person to Person
105	6/5/2014 8:30	6/5/2014 9:15	45	Western Region	WV	Staphylococcal Food Poisoning	Staphylo-coccus aureus	Patrons 52	Lab Confirmed	Restaurant	Point Source
106	6/9/2014 8:45	6/9/2014 9:00	15	Northeast Region	WV	Acute Gastroenteritis	Undetermined	Residents 3/96 (AR 3%) Staff 3/130 (AR 2%)	Lab test not done	LTCF	Person to Person
107	6/4/2014 15:00	6/12/2014 9:11	11171	Eastern Region	WV	Clostridium difficille Infection (CDI)	Clostridium difficille	Residents 18/120 (AR: 15%)	Lab Confirmed	LTCF	Person to Person

Outbreak Number	Date and Time Reported to LHD	Date and Time Reported to State	Elapsed Time in Minutes	Region	Jurisdiction	Clinical Diagnosis	Etiologic Agent	Final Case Count	Labs	Transmission	Modes of Transmission or Source of Illness
108	6/12/2014 14:00	6/12/2014 14:55	55	Southern Region	WV	Acute Gastroenteritis	Undetermined	Camp attendees 16/75 (AR 21%) Staff 2	Lab test not done	Camp	Undeter-mined
109	6/13/2014 11:30	6/13/2014 11:45	15	Central Region	WV	Acute Respiratory Syndrome	Parainfluenza/ Rhinovirus	Residents 17/85 (AR 20%) Staff 6/114 (AR 5%)	Lab Confirmed	LTCF	Person to Person
110	6/19/2014 9:00	6/19/2014 11:00	120	Eastern Region	WV	Acute Gastroenteritis	Undetermined	Camp attendees 10/56 (AR 18%) Staff 4/24 (AR 17%)	Lab test not done	Camp	Undeter-mined
111	6/25/2014 13:30	6/25/2014 13:40	10	Central Region	WV	Hand Foot and Mouth Disease	Undetermined	Attendees 5/8 (AR 63%)	Lab test not done	Daycare	Person to Person
112	7/2/2014 14:00	7/2/2014 14:30	30	Southern Region	WV	Acute Respiratory Syndrome	Rhinovirus	Residents 19/59 (AR 32%) Staff 4/32 (AR 13%)	Lab Confirmed	LTCF	Person to Person
113	7/2/2014 15:30	7/2/2014 15:00	30	Multiple	WV	Pontiac Fever	Legionella	Cases 3	Lab Confirmed	Hotel	Point Source
114	7/9/2014 9:30	7/9/2014 9:40	10	Northwest Region	WV	Acute Respiratory Syndrome	Rhinovirus	Residents 39/100 (AR 39%) Staff 14/170 (AR 8%)	Lab Confirmed	LTCF	Person to Person

Outbreak Number	Date and Time Reported to LHD	Date and Time Reported to State	Elapsed Time in Minutes	Region	Jurisdiction	Clinical Diagnosis	Etiologic Agent	Final Case Count	Labs	Transmission	Modes of Transmission or Source of Illness
115	7/14/2014 13:45	7/14/2014 14:45	60	Western Region	WV	Hand Foot and Mouth Disease	Undetermined	Children 31/115 (AR 20%)	Lab test not done	Daycare	Person to Person
116	7/16/2014 12:40	7/16/2014 13:00	20	Central Region	WV	Hand Foot and Mouth Disease	Undetermined	Attendees 5/8 (AR 63%)	Lab test not done	Daycare	Person to Person
117	7/21/2014 14:00	7/21/2014 14:17	17	Central Region	WV	Acute Gastroenteritis	Undetermined	Residents 11/58 (AR 19%) Staff 13/80 (AR 17%)	Lab test negative or noncontri-butory	LTCF	Person to Person
118	7/23/2014 12:30	7/23/2014 12:45	15	Central Region	WV	Acute Respiratory Syndrome	Rhinovirus	Residents 10/96 (AR 10%)	Lab Confirmed	LTCF	Person to Person
119	7/29/2014 15:40	7/29/2014 15:50	10	Central Region	WV	Hand Foot and Mouth Disease	Undetermined	Attendees 5/15 (AR 33%)	Lab test not done	Daycare	Person to Person
120	7/29/2014 15:45	7/29/2014 15:55	10	Northwest Region	WV	Hand Foot and Mouth Disease	Undetermined	Attendees 7/24 (AR 29%)	Lab test not done	Daycare	Person to Person
121	7/30/2014 8:30	7/30/2014 9:25	55	Eastern Region	WV	Acute Gastroenteritis	Undetermined	Residents 10/62 (AR 16%) Staff 8/91 (AR 9%)	Lab test negative or noncontri-butory	LTCF	Person to Person
122	7/30/2014 9:50	7/30/2014 10:30	40	Southern Region	WV	Hand Foot and Mouth Disease	Undetermined	Attendees 9/35 (AR 26%)	Lab test not done	Daycare	Person to Person
123	7/31/2014 12:45	7/31/2014 13:30	45	Central Region	WV	Hand Foot and Mouth Disease	Undetermined	Attendees 24/73 (AR 33%)	Lab test not done	Daycare	Person to Person

Outbreak Number	Date and Time Reported to LHD	Date and Time Reported to State	Elapsed Time in Minutes	Region	Jurisdiction	Clinical Diagnosis	Etiologic Agent	Final Case Count	Labs	Transmission	Modes of Transmission or Source of Illness
124	8/12/2014 9:00	8/12/2014 10:00	60	Central Region	WV	Hand Foot and Mouth Disease	Undetermined	Attendees 6/16 (AR 38%)	Lab test not done	Daycare	Person to Person
125	8/15/2014 9:30	8/15/2014 10:00	30	Southern Region	WV	Acute Gastroenteritis	Undetermined	Staff 3/21 (AR 14%)	Lab test not done	LTCF	Person to Person
126	8/18/2014 10:45	8/18/2014 11:00	15	Central Region	WV	Pneumonia	Undetermined	Residents 6/58 (AR 10%) Staff 1/80 (AR 1%)	Lab test negative or noncontri-butory	LTCF	Person to Person
127	8/18/2014 14:30	8/18/2014 15:00	30	Southern Region	WV	Acute Respiratory Syndrome	Rhinovirus	Residents 33/116 (AR 28%) Staff 14/120 (AR 12%)	Lab Confirmed	LTCF	Person to Person
128	8/26/2014 13:15	8/26/2014 13:20	5	Central Region	WV	Hand Foot and Mouth Disease	Undetermined	Attendees 20/37 (AR 54%)	Lab test not done	Daycare	Person to Person
130	8/29/2014 11:45	8/29/2014 14:15	150	Southern Region	WV	Hand Foot and Mouth Disease	Undetermined	Students 22/440 (AR 5%)	Lab test not done	School	Person to Person
131	8/29/2014 15:00	8/29/2014 15:30	30	Central Region	WV	MRSA Skin Infection	MRSA	Cases 2	Lab Confirmed	Tattoo Parlor	Point Source
132	9/3/2014 11:00	9/3/2014 11:20	20	Northwest Region	WV	Acute Respiratory Syndrome	Rhinovirus	Residents 52/102 (AR 51%) Staff 53/180 (AR 29%)	Lab Confirmed	LTCF	Person to Person
133	9/8/2014 14:05	9/8/2014 14:30	25	Northwest Region	WV	Hand Foot and Mouth Disease	Undetermined	Students 10/1032 (AR 1%)	Lab test not done	School	Person to Person

Outbreak Number	Date and Time Reported to LHD	Date and Time Reported to State	Elapsed Time in Minutes	Region	Jurisdiction	Clinical Diagnosis	Etiologic Agent	Final Case Count	Labs	Transmission	Modes of Transmission or Source of Illness
134	9/9/2014 11:00	9/9/2014 11:10	10	Central Region	WV	Hand Foot and Mouth Disease	Undetermined	Attendees 12/78 (AR 16%)	Lab test not done	Daycare	Person to Person
135	9/10/2014 10:15	9/10/2014 11:30	75	Southern Region	WV	Hand Foot and Mouth Disease	Undetermined	Students 12/230 (AR 5%)	Lab test not done	School	Person to Person
136	9/11/2014 15:40	9/11/2014 15:51	11	Multiple	WV	Acute Respiratory Syndrome	Enterovirus D68 (EVD68)	Cases 12	Lab Confirmed	Community	Person to Person
137	9/15/2014 10:00	9/15/2014 10:45	45	Northwest Region	WV	Hand Foot and Mouth Disease	Undetermined	Students 11/250 (AR 4%)	Lab test not done	School	Person to Person
138	9/16/2014 15:00	9/16/2014 15:15	15	Central Region	WV	Acute Respiratory Syndrome	Rhinovirus	Residents 9/92 (AR 10%)	Lab Confirmed	LTCF	Person to Person
139	9/22/2014 9:15	9/22/2014 9:45	30	Northeast Region	WV	Multiple Clinical Diagnoses	MRSA	Resident 3	Lab Confirmed	LTCF	Undeter-mined
140	9/23/2014 14:00	9/23/2014 14:15	15	Southern Region	WV	Hand Foot and Mouth Disease	Undetermined	Students 25	Lab test not done	School	Person to Person
141	9/24/2014 15:00	9/24/2014 15:15	15	Western Region	WV	Clostridium difficille Infection (CDI)	Clostridium Difficille	Patients 12	Lab Confirmed	Hospital	Person to Person
142	9/25/2014 15:20	9/25/2014 15:40	20	Northwest Region	WV	Hand Foot and Mouth Disease	Undetermined	Students 30/1305 (AR 2%)	Lab test not done	School	Person to Person
143	9/26/2014 11:15	9/26/2014 11:45	30	Northwest Region	WV	Streptococcus Pharyngitis	Group A Streptococcus (GAS)	Students 12/310 (AR 4%) Staff 6	Rapid test positive, not culture confirmed	School	Person to Person

Outbreak Number	Date and Time Reported to LHD	Date and Time Reported to State	Elapsed Time in Minutes	Region	Jurisdiction	Clinical Diagnosis	Etiologic Agent	Final Case Count	Labs	Transmission	Modes of Transmission or Source of Illness
144	9/26/2014 14:20	9/26/2014 14:30	10	Central Region	WV	Acute Respiratory Syndrome	Rhinovirus	Residents 10/30 (33%)	Lab Confirmed	LTCF	Person to Person
145	10/1/2014 16:00	10/1/2014 16:30	30	Eastern Region	WV	Hand Foot and Mouth Disease	Undetermined	Attendees 7/43 (AR 16%)	Lab test not done	Daycare	Person to Person
146	10/3/2014 8:30	10/3/2014 9:20	50	Central Region	WV	MRSA Skin Infection	MRSA	Attendees 4/190 (AR 2%)	Lab Confirmed	Vocational Center	Person to Person
147	10/7/2014 10:05	10/7/2014 10:10	5	Southern Region	WV	Acute Respiratory Syndrome	Rhinovirus	Residents 21/83 (AR 25%)	Lab Confirmed	LTCF	Person to Person
148	10/8/2014 12:50	10/8/2014 13:07	17	Northwest Region	WV	Acute Respiratory Syndrome	Undetermined	Residents 24/187 (AR 13%)	Lab test not done	LTCF	Person to Person
149	10/8/2014 16:00	10/8/2014 16:30	30	Southern Region	WV	Hand Foot and Mouth Disease	Undetermined	Team members 4	Lab test not done	Sports Team	Person to Person
150	10/10/2014 11:00	10/10/2014 11:23	23	Eastern Region	WV	Hand Foot and Mouth Disease	Undetermined	Students 25	Lab test not done	School	Person to Person
151	10/14/2014 8:15	10/14/2014 9:05	50	Central Region	WV	Hand Foot and Mouth Disease	Undetermined	Attendees 3/20 (15%)	Lab test not done	Daycare	Person to Person
152	10/16/2014 12:00	10/16/2014 13:10	70	Southern Region	WV	Hand Foot and Mouth Disease	Undetermined	Students 4	Lab test not done	School	Person to Person
153	10/21/2014 8:30	10/21/2014 8:50	20	Northwest Region	WV	Acute Gastroenteritis	Undetermined	Attendees 28/45 (AR 62%) Staff 4/10 (AR 40%)	Lab test negative or noncontri-butory	Daycare	Person to Person

Outbreak Number	Date and Time Reported to LHD	Date and Time Reported to State	Elapsed Time in Minutes	Region	Jurisdiction	Clinical Diagnosis	Etiologic Agent	Final Case Count	Labs	Transmission	Modes of Transmission or Source of Illness
154	10/22/2014 9:45	10/22/2014 9:45	0	Northeast Region	WV	Hand Foot and Mouth Disease	Undetermined	Attendees 5	Lab test not done	Daycare	Person to Person
155	10/27/2014 11:15	10/27/2014 11:32	17	Northwest Region	WV	Fifth Disease	Undetermined	Students 20/272 (AR 7%)	Lab test not done	School	Person to Person
156	10/28/2014 9:00	10/28/2014 9:25	25	Northwest Region	WV	Hand Foot and Mouth Disease	Undetermined	Students 3	Lab test not done	School	Person to Person
157	11/7/2014 8:15	11/7/2014 9:50	95	Southern Region	WV	Clostridum difficille Infection (CDI)	Clostridum difficille	Residents 11/160 (AR 7%)	Lab Confirmed	LTCF	Person to Person
158	11/12/2014 13:45	11/12/2014 14:00	15	Central Region	WV	Hand Foot and Mouth Disease	Undetermined	Attendees 7/19 (AR 37%)	Lab test not done	Daycare	Person to Person
159	11/18/2014 10:30	11/18/2014 10:40	10	Northwest Region	WV	Scabies	Undetermined	Residents 20/59 (AR 17%) Staff 10	Lab test not done	LTCF	Person to Person
160	11/18/2014 14:30	11/18/2014 14:40	10	Western Region	WV	Influenza	Influenza A	Students 60/400 (AR 15%)	Rapid test positive but not culture confirmed	School	Person to Person
161	11/20/2014 10:30	11/20/2014 10:59	29	Central Region	WV	Hand Foot and Mouth Disease	Undetermined	Attendees 3/7 (AR 43%)	Lab test not done	Daycare	Person to Person
162	11/20/2014 9:30	11/20/2014 11:51	141	Northeast Region	WV	Hand Foot and Mouth Disease	Undetermined	Students 30/600 (AR 5%)	Lab test not done	School	Person to Person

Outbreak Number	Date and Time Reported to LHD	Date and Time Reported to State	Elapsed Time in Minutes	Region	Jurisdiction	Clinical Diagnosis	Etiologic Agent	Final Case Count	Labs	Transmission	Modes of Transmission or Source of Illness
163	11/27/2014 14:00	11/27/2014 15:00	60	Southern Region	WV	Potential Healthcare Associated Hepatitis C	Hepatitis C	One case	Lab Confirmed	Undeter-mined	Undeter-mined
165	11/24/2014 11:00	11/24/2014 11:20	20	Eastern Region	WV	Scabies	Undetermined	Residents 24/104 (AR 23%) Staff 2/148 (AR 1%)	Lab test not done	LTCF	Person to Person
166	12/2/2014 13:15	12/2/2014 13:45	30	Central Region	WV	Influenza	Influenza A H3	Residents 15/88 (AR 17%) Staff 8/111 (AR 7%)	Lab Confirmed	LTCF	Person to Person
167	12/9/2014 14:35	12/9/2014 15:00	25	Northeast Region	WV	Influenza	Influenza A	Residents 33/92 (AR 36%) Staff 8/130 (AR 6%)	Lab Confirmed	LTCF	Person to Person
168	12/9/2014 14:25	12/9/2014 15:25	60	Northwest Region	WV	Acute Respiratory Syndrome	Undetermined	Residents 9/25 (AR 36%)	Lab test negative or noncontri-butory	LTCF	Person to Person
171	12/11/2014 9:00	12/11/2014 9:50	50	Central Region	WV	Acute Gastroenteritis	Undetermined	Residents 15/50 (AR 30%) Staff 2	Lab test not done	LTCF	Person to Person
172	12/11/2014 14:15	12/12/2014 10:30	1215	Eastern Region	WV	Influenza	Influenza A H3	Highest Absentee Rate 47%	Lab Confirmed	Multiple Schools	Person to Person

Outbreak Number	Date and Time Reported to LHD	Date and Time Reported to State	Elapsed Time in Minutes	Region	Jurisdiction	Clinical Diagnosis	Etiologic Agent	Final Case Count	Labs	Transmission	Modes of Transmission or Source of Illness
175	12/15/2014 11:30	12/15/2014 14:37	187	Northwest Region	WV	Influenza	Influenza A	Highest Absentee Rate 35%	Rapid test positive, not culture confirmed	School	Person to Person
176	12/16/2014 11:40	12/16/2014 12:15	35	Northwest Region	WV	Fifth Disease	Undetermined	Students 22/437 (AR 5%)	Lab test not done	School	Person to Person
177	12/16/2014 16:00	12/16/2014 16:10	10	Central Region	WV	Acute Respiratory Syndrome	Undetermined	Residents 4/59 (AR 7%) Staff 3/116 (AR 3%)	Lab test negative or noncontri-butory	LTCF	Person to Person
178	12/16/2014 16:30	12/17/2014 9:30	1020	Western Region	WV	Influenza	Influenza	Residents 24/159 (AR 15%) Staff 7/130 (AR 6%)	Rapid test positive, not culture confirmed	LTCF	Person to Person
179	12/19/2014 13:00	12/19/2014 13:10	10	Eastern Region	WV	Febrile Illness of Unknown Etiology	Undetermined	Highest Absentee Rate 27%	Lab test not done	School	Person to Person
180	12/19/2014 12:00	12/19/2014 12:10	10	Western Region	WV	Influenza	Influenza	Residents 12/84 (AR 14%) Staff 5/125 (AR 4%)	Rapid test positive, not culture confirmed	LTCF	Person to Person
181	12/22/2014 9:05	12/22/2014 9:45	40	Northwest Region	WV	Influenza	Influenza A	Patients 18/33 (AR 55%)	Rapid test positive, not culture confirmed	Rehab Facility	Person to Person

Outbreak Number	Date and Time Reported to LHD	Date and Time Reported to State	Elapsed Time in Minutes	Region	Jurisdiction	Clinical Diagnosis	Etiologic Agent	Final Case Count	Labs	Transmission	Modes of Transmission or Source of Illness
182	12/22/2014 9:30	12/22/2014 9:50	20	Southern Region	WV	Acute Gastroenteritis	Undetermined	Residents 26/39 (AR 67%) Staff 15/47 (AR 32%)	Lab test not done	LTCF	Person to Person
183	12/22/2014 14:30	12/22/2014 15:10	40	Southern Region	WV	Acute Gastroenteritis	Undetermined	Residents 7/47 (AR 15%) Staff 21/144 (AR 15%)	Lab test not done	Assisted Living	Person to Person
184	12/15/2014 14:00	12/15/2014 15:00	60	Western Region	WV	Giardiasis	Giardia lamblia	Cases 5	Lab Confirmed	Community	Undeter-mined
185	12/23/2014 13:15	12/23/2014 13:25	10	Central Region	WV	Influenza	Influenza	Residents 24/57 (AR 42%) Staff 3	Rapid test positive but not culture confirmed	LTCF	Person to Person
186	12/23/2014 14:00	12/23/2014 14:50	50	Northwest Region	WV	Influenza	Influenza A	Residents 41/167 (AR 25%)	Rapid test positive but not culture confirmed	LTCF	Person to Person
187	12/24/2014 9:15	12/24/2014 9:20	5	Northwest Region	WV	Influenza	Influenza A H3	Residents 41/105 (AR 39%) Staff 21/180 (AR 12%)	Lab Confirmed	LTCF	Person to Person
188	12/24/2014 11:00	12/24/2014 11:20	20	Central Region	WV	Influenza	Influenza	Residents 6/120 (AR 5%) Staff 14/150 (AR 9%)	Rapid test positive	LTCF	Person to Person
189	12/26/2014 10:00	12/26/2014 10:30	30	Western Region	WV	Influenza	Influenza A H3	Residents 17/57 (AR 30%) Staff 14/80 (AR 18%)	Lab Confirmed	LTCF	Person to Person

Outbreak Number	Date and Time Reported to LHD	Date and Time Reported to State	Elapsed Time in Minutes	Region	Jurisdiction	Clinical Diagnosis	Etiologic Agent	Final Case Count	Labs	Transmission	Modes of Transmission or Source of Illness
190	12/29/2014 9:00	12/29/2014 9:19	19	Northeast Region	WV	Influenza	Influenza A	Residents 6/95 (AR 6%) Staff 4/130 (3%)	Lab Confirmed	LTCF	Person to Person
191	12/29/2014 11:00	12/29/2014 11:13	13	Northwest Region	WV	Influenza	Influenza A	Residents 20/105 (AR 19%) Staff 11/120 (AR 9%)	Rapid test positive	LTCF	Person to Person
192	12/29/2014 11:50	12/29/2014 12:00	10	Northwest Region	WV	Influenza	Influenza A	Residents 39/54 (AR 56%) Staff 15	Rapid test positive	LTCF	Person to Person
193	12/29/2014 13:45	12/29/2014 14:15	30	Southern Region	WV	Influenza	Influenza	Residents 25/57 (AR 44%) Staff 5/100 (AR 5%)	Rapid test positive,not culture confirmed	LTCF	Person to Person
194	12/29/2014 13:45	12/29/2014 14:15	30	Southern Region	WV	Norovirus Gastroenteritis	Norovirus G I	Residents 15/57 (AR 26%)	Lab Confirmed	LTCF	Person to Person
195	12/29/2014 14:00	12/29/2014 14:15	15	Northwest Region	WV	Acute Gastroenteritis	Undetermined	Residents 21/105 (AR 20%)	Lab test not done	LTCF	Person to Person
196	12/30/2014 9:32	12/30/2014 9:55	23	Central Region	WV	Influenza	Influenza A H3	Residents 12/74 (AR 16%)	Lab Confirmed	LTCF	Person to Person
197	12/30/2014 10:00	12/30/2014 10:45	45	Central Region	WV	Influenza	Influenza A H3	Residents 17/56 (AR 30%)	Lab Confirmed	Assisted Living	Person to Person
198	12/30/2014 13:25	12/30/2014 13:30	5	Central Region	WV	Influenza	Influenza A H3	Residents 21/78 (AR 27%) Staff 3/56 (AR 5%)	Lab Confirmed	Assisted Living	Person to Person

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199	12/30/2014 13:50	12/30/2014 14:00	10	Northwest Region	WV	Influenza	Influenza A	Residents 4/96 (AR 4%) Staff 13/128 (AR 10%)	Rapid test positive, not culture confirmed	LTCF	Person to Person
200	12/30/2014 14:30	12/30/2014 14:58	28	Northwest Region	WV	Acute Gastroenteritis	Undetermined	Residents 22/145 (AR 15%) Staff 28/203 (AR 14%)	Lab test not done	LTCF	Person to Person
201	12/31/2014 8:00	12/31/2014 8:30	30	Western Region	WV	Influenza	Influenza A	Residents 7/60 (AR 12%) Staff 2/90 (AR 2%)	Rapid test positive, not culture confirmed	Assisted Living	Person to Person
202	12/31/2014 12:30	12/31/2014 12:45	15	Southern Region	WV	Influenza	Influenza A	Residents 15/60 (AR 25%) Staff 4	Rapid test positive, not culture confirmed	LTCF	Person to Person
203	12/31/2014 13:00	12/31/2014 13:15	15	Northwest Region	WV	Influenza	Influenza A	Residents 18/130 (AR 14%) Staff 4	Rapid test positive, not culture confirmed	LTCF	Person to Person