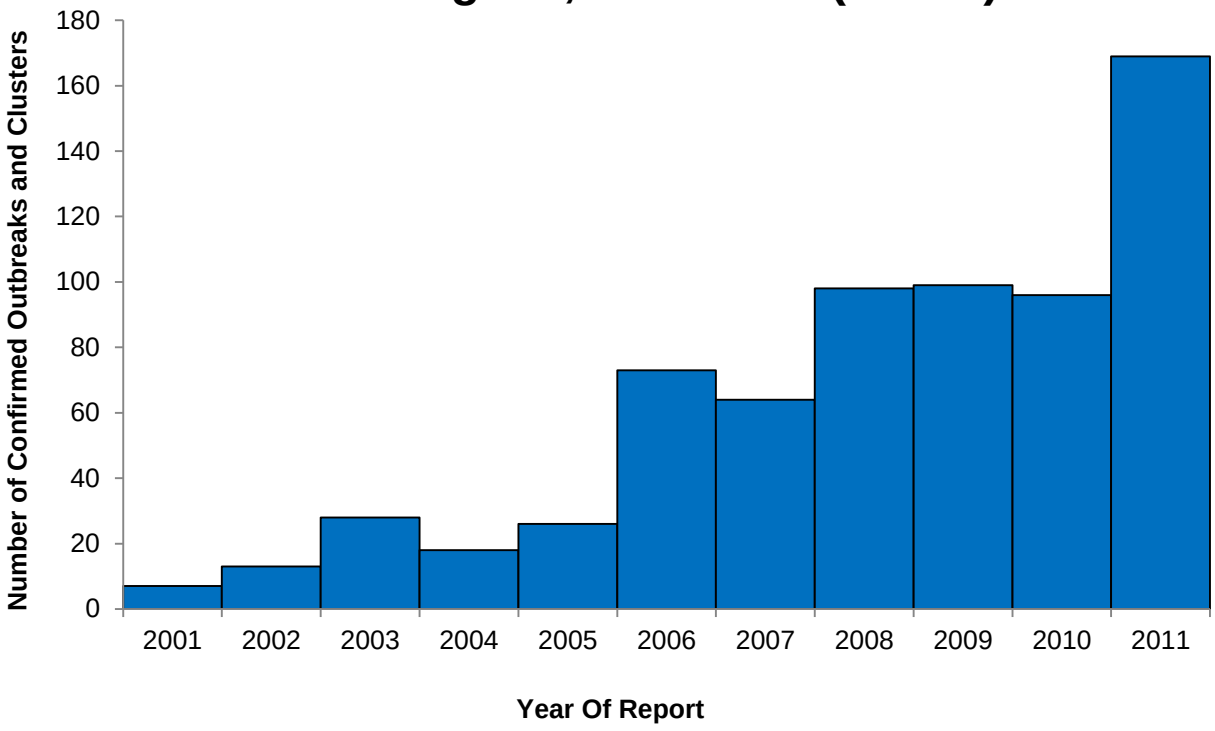
2011 Final Outbreak Report
State of West Virginia

Introduction:

In 2011, a total of 194 outbreaks were identified and reported to local health departments. Of these reports, 169 (87.1%) were confirmed as outbreaks or clusters of disease (Appendix). Local health departments investigate and report outbreaks with assistance from their regional epidemiologist and the Bureau for Public Health. Results of these investigations were compiled by the Bureau for Public Health and summarized in this report.

The total number of outbreaks reported in West Virginia continued to rise during 2011. In 2001, 7 confirmed outbreaks were reported. In 2011, 169 confirmed outbreaks were reported, representing a 24-fold increase (Figure 1).

Figure 1. Confirmed Outbreaks or Clusters, West Virginia, 2001-2011 (n=691)



Confirmed Outbreaks:

In 2011, 162 (95.9%) confirmed outbreaks were limited to West Virginia residents, and 7(4.1%) outbreak involved residents of other states. The most common type of outbreak involved respiratory illness, followed by outbreaks of enteric illness (Table 1).

Table 1. Confirmed Outbreaks by Type, West Virginia, 2011

Outbreak Type	Number of Outbreaks	Percent
Respiratory	60	35.5
Enteric	56	33.1
Rash	34	20.1
MDROs	13	7.7
Other	6	3.6
Total	169	100

Outbreaks Reported by Counties/Regions:

In 2011 43 (78%) counties reported outbreaks, including multi-county outbreaks (Table 2) compared to 28 counties in 2010, an increase of 27%. The highest number of outbreaks (39) was reported from Kanawha County followed by Wood County with 15 outbreaks and Mercer County 13 outbreaks (Figure 2). Individual outbreaks will be reported by surveillance regions rather than reporting counties.

Figure 2. Counties Reporting Outbreaks / Outbreak-Related Cases, West Virginia, 2011 (n=43)

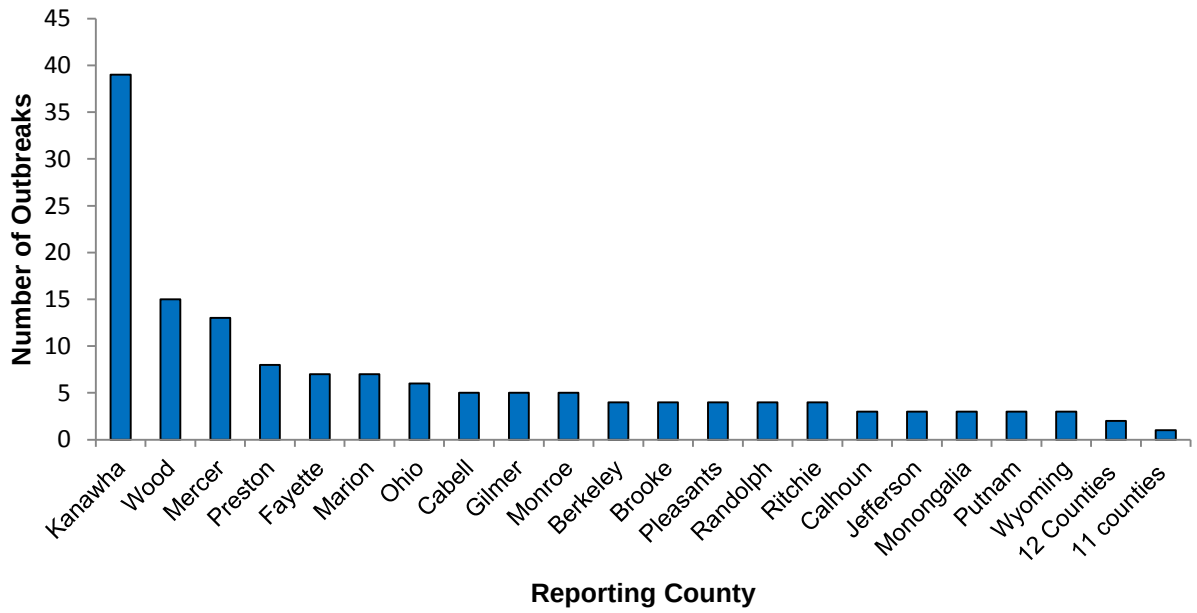


Table 2. Counties Reporting Outbreaks and/or Outbreak-Related Cases (Includes Multi-County Outbreaks), West Virginia, 2011

Counties with Cases	Number of Outbreaks
Berkeley	4
Braxton	1
Brooke	4
Cabell	5
Calhoun	3
Clay	1
Fayette	7
Gilmer	5
Grant	2
Greenbrier	2
Hampshire	1
Hancock	1
Hardy	1
Harrison	2
Jefferson	3
Kanawha	39
Lewis	1
Logan	1
Marion	7
Marshall	2
Mason	2
Mercer	13
Mineral	2
Monongalia	3
Monroe	5
Morgan	2
Nicholas	2
Ohio	6
Pendleton	1
Pleasants	4
Preston	8
Putnam	3
Raleigh	2
Randolph	4
Ritchie	4
Roane	1
Tyler	1
Upshur	2

Webster	2
Wetzel	2
Wirt	1
Wood	15
Wyoming	3

All surveillance regions in the state reported outbreaks in 2011 (Figure 3 and 3a). The following are the different surveillance regions and their counties:
Region 1 (ROC) includes the following counties: Fayette, McDowell, Mercer, Monroe, Raleigh, Summers, and Wyoming.
Region 2 (BUNDLE) includes the following counties: Boone, Cabell, Jackson, Lincoln, Logan, Mason, Mingo, Putnam, and Wayne.
Region 3 (Eastern Panhandle) includes the following Counties: Berkeley, Grant, Hampshire, Hardy, Jefferson, Mineral, Morgan, Pendleton, and Pocahontas.
Region 4 (Northern Panhandle) includes the following counties: Brooke, Hancock, Marshall, Ohio, Tyler, and Wetzel.
Region 5 (PACT) includes the following counties: Doddridge, Harrison, Marion, Monongalia, Preston, and Taylor.
Region 6 (Mid-Ohio Valley) includes the following counties: Calhoun, Pleasants, Ritchie, Roane, Wirt, and Wood.
Region 7 (SPHERE) includes the following counties: Barbour, Braxton, Clay, Gilmer, Lewis, Nicholas, Randolph, Tucker, Upshur, and Webster.
Region 8 (Kanawha-Charleston) includes only Kanawha county.

Figure 3. Confirmed Outbreaks Reported by Region, West Virginia, 2011 (n=169)

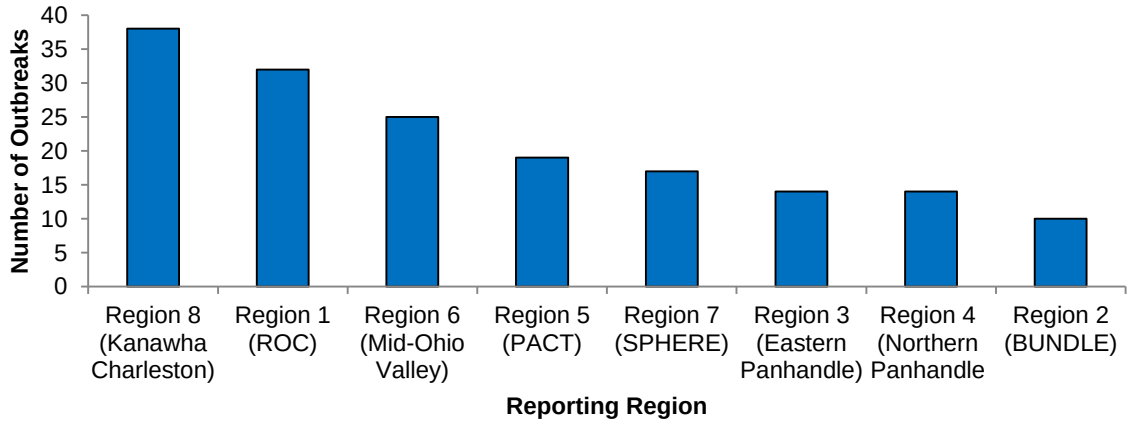


Figure 3a.
Confirmed Outbreaks Reported by Region, West Virginia, 2011 (n=169)

Respiratory Outbreaks:

Outbreaks of respiratory illness were the most common type of disease outbreak in 2011, accounting for 60 (35.5%) confirmed outbreaks (Table 1). Respiratory illness outbreaks were reported by 26 (47%) counties from 7 surveillance regions (Figure 4).

Figure 4. Respiratory Disease Outbreaks by Reporting Region, West Virginia, 2011 (n=60)

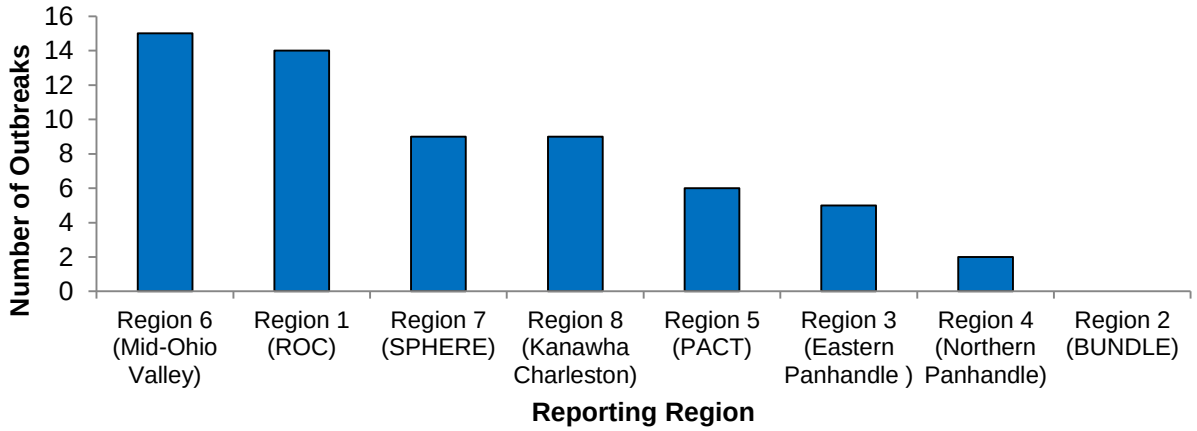
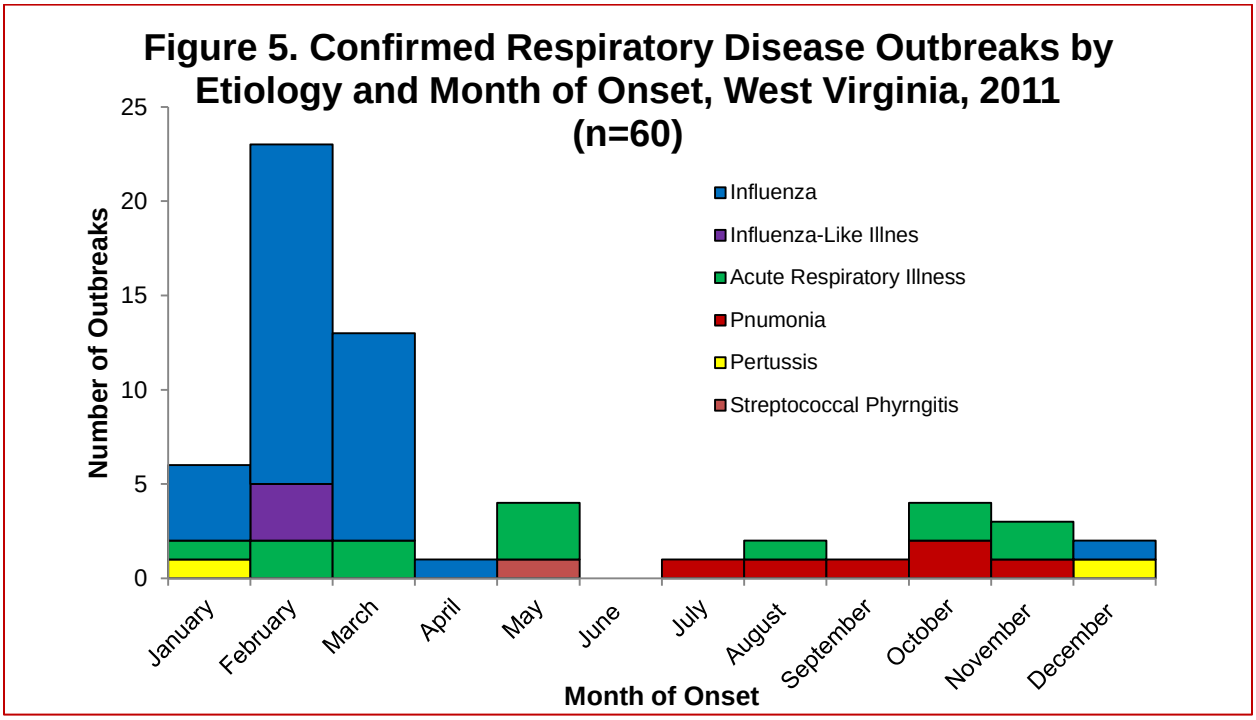


Figure 5 illustrates respiratory disease outbreaks by type and month of onset.



Influenza and Influenza-like illness (ILI) accounted for the majority of respiratory outbreaks followed by acute respiratory illness, and pneumonia (Table 3). ILI is defined as a fever of a 100 degrees Fahrenheit or higher, plus cough, and/or sore throat in the absence of a known cause. Acute respiratory illness 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”. Of respiratory outbreaks 45 were laboratory confirmed, 10 had laboratory testing that was negative or noncontributory and in 5 outbreaks laboratory testing was not done, Respiratory outbreaks are listed by etiological agents in Table 4. More than then 50 % of respiratory disease outbreaks were reported in long-term care facilities (LTCFs) (Table 5).

Table 3. Respiratory Disease Outbreaks by Clinical Syndrome, West Virginia, 2011

Clinical Diagnosis	Number of Outbreaks	Percent
Influenza and ILI	38	63.4
Acute Respiratory Illness	13	21.6
Pneumonia	6	10
Pertussis	2	3.3
Streptococcal pharyngitis	1	1.7
Total	60	100

Table 4. Respiratory Disease Outbreaks by Etiologic Agents, West Virginia, 2011

Etiologic Agent	Number of Outbreaks	Percent
Influenza	35	58
Undetermined	15	25
RSV	3	5
Bordetella pertussis	2	3
Mycoplasma Pneumoniae	2	3
Group A *Streptococcus*	1	2
legionella pneumophila	1	2
Rhinovirus	1	2
Total	60	100

Table 5. Respiratory Disease Outbreaks by Transmission Setting West Virginia, 2011

Transmission Setting	Number of Outbreaks	Percent
LTCFs	34	56.7
schools	18	30
Communities	4	6.7
Daycares	3	5
Sports Team	1	1.7
Total	60	100

In 2011, there were 35 outbreaks of laboratory confirmed influenza and 3 outbreaks of influenza-like illness with undetermined etiology. Of the 35 influenza outbreaks 26 (74.2%) were PCR confirmed and 9 (25.8%) were rapid test positive but not PCR confirmed. There were 19 outbreaks caused by influenza A H3 virus, 7 caused by influenza A virus (2 PCR confirmed without subtyping and 5 rapid test positive), 3 caused by influenza B (1 PCR confirmed and 2 rapid test positive), 2 caused by seasonal 2009 influenza A(H1N1) , 1 caused by both influenza A and B virus (rapid test positive), 1 caused by influenza without typing (rapid test positive), 1 caused by influenza A H3, B and 2009 A (H1N1) (PCR confirmed) and 1 caused by the novel influenza A (H3N2)v (Table 6).
Long-term care facilities (LTCFs) reported most of the influenza outbreaks (20) followed by schools (13), athletic team (1) and a daycare (1).

Table 6. Influenza Outbreaks by Etiologic Agents, West Virginia, 2011

Etiologic Agent	Number of Outbreaks	Percent
Influenza A H3	19	54.2
Influenza A	7	20
Influenza B	3	8.5
Influenza A H1N1	2	5.7
Influenza	1	2.9
Influenza A & B	1	2.9
Influenza A HIN1, A H3 and Influenza B	1	2.9
Novel Influenza A (H3N2)v	1	2.9
Total	35	100

In December 2011, there was a novel influenza A (H3N2)v outbreak confirmed in a daycare in the Eastern panhandle (Region 3). Between November 9, 2011 through December 25, 2011, 26 cases of upper respiratory illness were identified among attendees of daycare X for an attack rate of 50%. Among ill daycare attendees 11 (42%) were tested for influenza and only 2 were positive for A (H3N2)v. Illness onset in these two cases was 10 days apart, consistent with 2 to 5 generations of transmission between these two confirmed cases. No contact with swine or farm animals was documented, suggesting that transmission occurred from one person to another within the daycare. Illness was mild and all ill persons recovered. There were no deaths and no hospitalizations attributable to respiratory illness. No daycare staff became ill and secondary attack rate within households was 6%, suggesting highly inefficient transmission of this novel influenza virus in persons over age 5 years, consistent with other states' experience with this virus. No additional cases of influenza A (H3N2)v were identified among persons in the community unassociated with the daycare.

In 2011, three outbreaks of ILI were reported in schools (2) and a daycare (1)

There were 6 outbreaks of pneumonia. WV BPH requested assistance from the Centers for Disease Control and Prevention (CDC) with the investigation of two pneumonia outbreaks

The first outbreak was reported in late August, 2011 after the CDC's Supplemental Legionnaires Disease Surveillance System identified 3 residents of the state of Ohio diagnosed with laboratory-confirmed Legionnaires disease (LD). All 3 patients had history of spending some time in Resort A in the Northern Panhandle of West Virginia. Further investigation identified 6 more confirmed cases without history of attending or traveling within a short radius from Resort A. Environmental sampling from Resort A and four cooling towers within 10 mile radius of Resort A were collected and sent to CDC laboratory for testing. The three Resort A-associated cases may have had a common exposure source at the resort entrance close to the main fountain. However,

this theory was not supported by laboratory evidence since super halogenation of the fountains and hot tubs adversely affected the laboratory ability to detect Legionella in the majority of the environmental samples from Resort A. For community associated cases, there were no clear epidemiological links to either the resort or the nearby industrial cooling towers. Recommendations were given to Resort A and other industrial sites in the area including developing and implementing a routine maintenance plan in keeping with American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) guidelines for legionella prevention and control.

The second outbreak was reported in October, 2011 when a LHD and WV BPH noticed an increase in the pneumonia cases among school-aged children in two adjacent counties. Based on the clinical presentation and initial testing at CDC laboratory, using real-time polymerase chain reaction (qPCR), *Mycoplasma pneumoniae* (MP) was suspected. Investigation with assistance from CDC identified 125 cases with MP as the cause. Despite the outbreak was a large community outbreak the illness was associated with few hospitalizations (6%). There were no extra-pulmonary manifestations, intensive care admissions or fatalities. Early implementation of outbreak control measures, such as education on hand hygiene, respiratory etiquette, social distancing was crucial on controlling the outbreak. Prompt treatment of cases was recommended but wide use of prophylactic antibiotics was not implemented.

There were 13 outbreaks of acute respiratory illness in 2011. Three outbreaks were laboratory confirmed (Culture/PCR), one was rapid test positive, 7 had laboratory testing that was negative or noncontributory and 2 did not have laboratory testing performed.

Three outbreaks of acute respiratory illness were caused by Respiratory Syncytial Virus (RSV). Two RSV outbreaks were reported in LTCFs and one in a daycare.

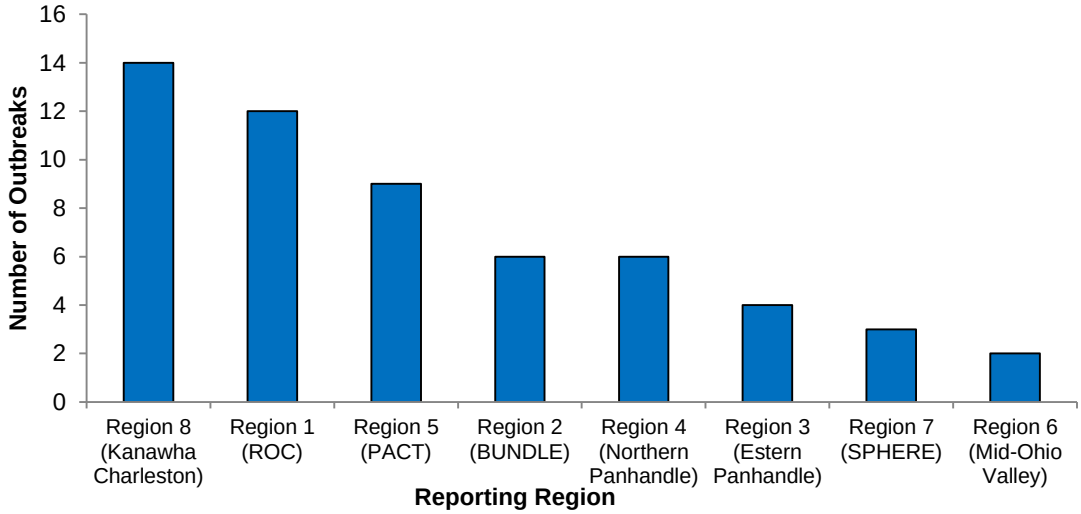
There was one outbreak of *Streptococcus* pharyngitis reported in a school in 2011. *Streptococcus* pharyngitis is caused by group A *Streptococcus* (GAS) and presents clinically with fever, pharyngitis and sore throat. This outbreak was rapid test positive but not culture confirmed.

There were two only outbreaks of pertussis (whooping cough) in 2011 compared to 5 outbreaks reported in 2010. The first one was reported in January and was culture confirmed. There were one confirmed and 5 probable cases including residents of a neighboring state.
The second outbreak was reported in December and was also culture confirmed. There were 13 confirmed and 6 probable cases. There were no fatalities associated with these two outbreaks. Vaccination is the best defense against pertussis. However, since the vaccine is not 100% effective, pertussis outbreaks can still occur even in highly vaccinated populations.

Enteric Outbreaks

Outbreaks of enteric illness were the second most common type of disease outbreak in 2011, accounting for 33.1% of all outbreaks. A total of 56 enteric outbreaks were reported by 22 (38%) counties. All 8 regions reported enteric disease outbreaks (Figure 6). Five enteric illness outbreaks were reported in West Virginia as part of a multi-state outbreak. The Centers for Disease Control and Prevention (CDC) and other states were the lead investigators for the multi-state outbreaks.

Figure 6. Confirmed Enteric Disease Outbreaks by Reporting Region, West Virginia, 2011 (n=56)



The majority of enteric disease outbreaks were reported from healthcare facilities (44) including 41 from LTCFs and 3 from hospitals (Table 7).

Table 7. Enteric Disease Outbreaks by Transmission Settings, West Virginia, 2011

Transmission Setting	Number of Outbreaks	Percent
LTCFs	41	73.2
Communities	6	10.7
Hospitals	3	5.4
Schools	3	5.4
School Camping Trip	1	1.8
Sport event attendees	1	1.8
Workplace gathering	1	1.8
Total	56	100

Norovirus gastroenteritis outbreaks were the most common types of enteric disease outbreaks, accounting for 27 (46.6%) followed by 21 (36.2%) outbreaks of acute gastroenteritis. Acute gastroenteritis outbreaks were defined as outbreaks of illness with short duration (2-3 or fewer days) characterized by acute onset of vomiting and /or diarrhea and no laboratory confirmation. Norovirus genotype II accounted for the majority of norovirus outbreaks (18) followed by norovirus genotype I (5) (Table 8)

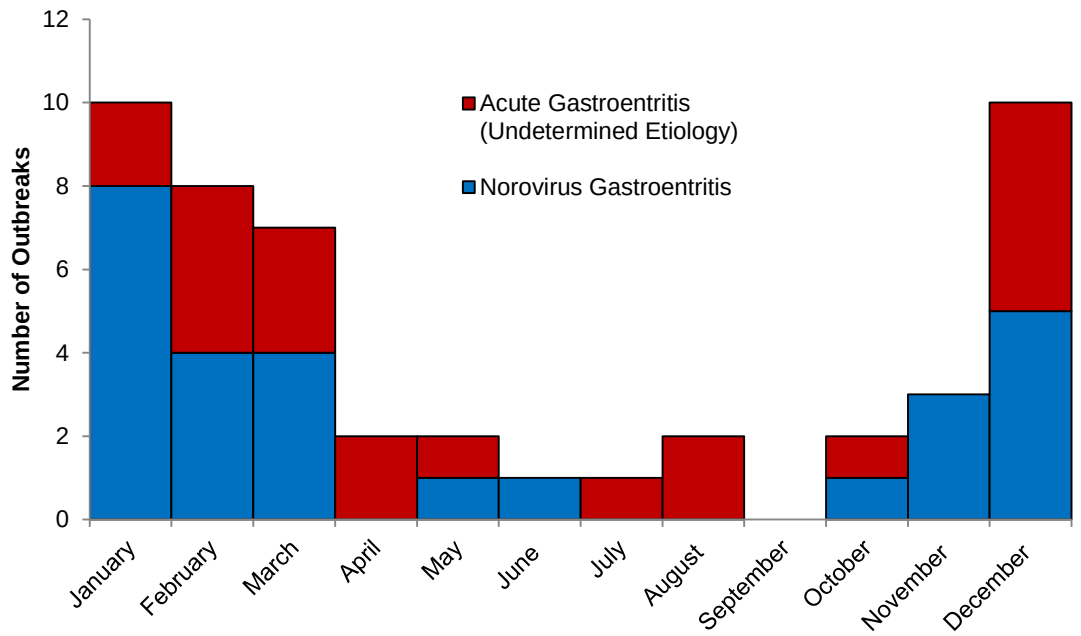
Table 8. Outbreaks of Enteric Disease by Etiologic Agent / Clinical Syndrome, West Virginia, 2011

Etiologic Agent / Clinical syndrome	Number of Outbreaks	Percent
Acute gastroenteritis (Undetermined etiology)	21	37.5
Norovirus Genotype II	18	32.1
Norovirus Genotype I	5	8.9
Salmonella species	4	7.2
Norovirus (no subtyping)	3	5.3
Campylobacter	1	1.8
E. coli	1	1.8
Listeria monocytogenes	1	1.8
Norovirus and Rotavirus	1	1.8
Acute Mesenteric Lymphadenitis (undetermined etiology)	1	1.8
Total	56	100

Among the 21 outbreaks characterized as acute gastroenteritis, laboratory tests were negative or noncontributory in 7 outbreaks and not done in 14 outbreaks. All norovirus outbreaks were confirmed by PCR. The majority of enteric disease outbreaks 46 (79.4%) were due to person to person transmission.

Outbreaks of acute gastroenteritis and norovirus exhibit similar seasonality and follow a familiar pattern of norovirus transmission in the winter months (Figure 7).

Figure 7. Outbreaks of Acute and Norovirus Gastroenteritis by Month of Report, West Virginia, 2011 (n=48)



There were 4 enteric outbreaks caused by *Salmonella* species. The first of these outbreaks was reported in May, 2011 when 4 West Virginia residents were diagnosed with salmonellosis as part of multi-state outbreak of *Salmonella* serotype Altona. The outbreak affected 68 individuals from 20 states due to contact with live polutry (chick and ducks).

The second outbreak was reported in January, 2011. Twenty eight individuals were diagnosed with *Salmonella* serotype Johannesburg from 15 states including one individual from West Virginia. This outbreak was also due to contact with live poultry. Traceback investigation identified a single mail-order hatchery in Ohio as the source of these chicks and ducklings that caused both outbreaks.

The third outbreak in August 2011, when several patrons of a restaurant in the state of Maryland were diagnoses with *Salmonella* serotype Entriditis . The state of Maryland led this investigation and identified a total of 17 confirmed and 24 probable cases including one confirmed and one probable West Virginia residents.

The fourth outbreak of salmonellosis was reported in December 2011. Five cases of salmonellosis were identified among the attendees of a holiday dinner served to approximately 1000 individuals. Further testing confirmed that the five cases were

infected with *Salmonella schwarzengrund.* A definitive source of the outbreak could not be determined. Multiple plausible sources were revealed during the investigation. The environmental investigation revealed that a pan of roasted turkey was removed from the buffet service because it was reportedly undercooked. An investigation of the food handlers working at the event revealed one who tested positive for the outbreak strain, however, the food handler also ate at the event so it is impossible to determine if he/she was infected prior to the event or at the event.

There was a multi-state outbreak of Shiga toxin-producing *E. coli* (STEC O157:H7) that affected 14 individuals, mostly children, including 7 West Virginia residents. Investigation revealed that the outbreak was linked to the lake at a state park in Pennsylvania. Several children in Pennsylvania became severely ill with hemolytic uremic syndrome (HUS), a complication of the bacteria that affects the kidneys, after visiting the lake. The outbreak was never directly tied to the lake, but there was a strong connection between swimmers and the illnesses. Fecal contamination of water was suggested as the source of infection.

In 2011, there was also a multi-state outbreak of listeriosis. Investigation led by CDC identified a total of 146 persons infected with any of the four outbreak-associated strains of *Listeria monocytogenes* from 28 states including one case from West Virginia. The outbreak resulted in 144 hospitalizations and 30 deaths. The West Virginia case was hospitalized and recovered. Traceback investigation indicated that the source of the outbreak was whole cantaloupe grown at Jensen Farms' production fields in Granada, Colorado.

Rash Illness Outbreaks

Outbreaks of rash illness were the third most common outbreak type in 2011 accounting for 34 (20.1%) outbreaks and reported by 14 counties from 7 surveillance regions (Figure 8). One outbreak involved 12 counties.

The most common type of rash illness outbreaks reported was varicella (chickenpox) (14) followed by scabies (10), Fifth Disease (2), Hand, Foot and Mouth Disease (2), Methicillin-resistant *Staphylococcus aureus* (MRSA) skin infection (2), Methicillin-sensitive *Staphylococcus aureus* (MSSA) skin infection (2) Herpes gladiatorum (1) and ringworm/dermatophytes (1) (Table 9).

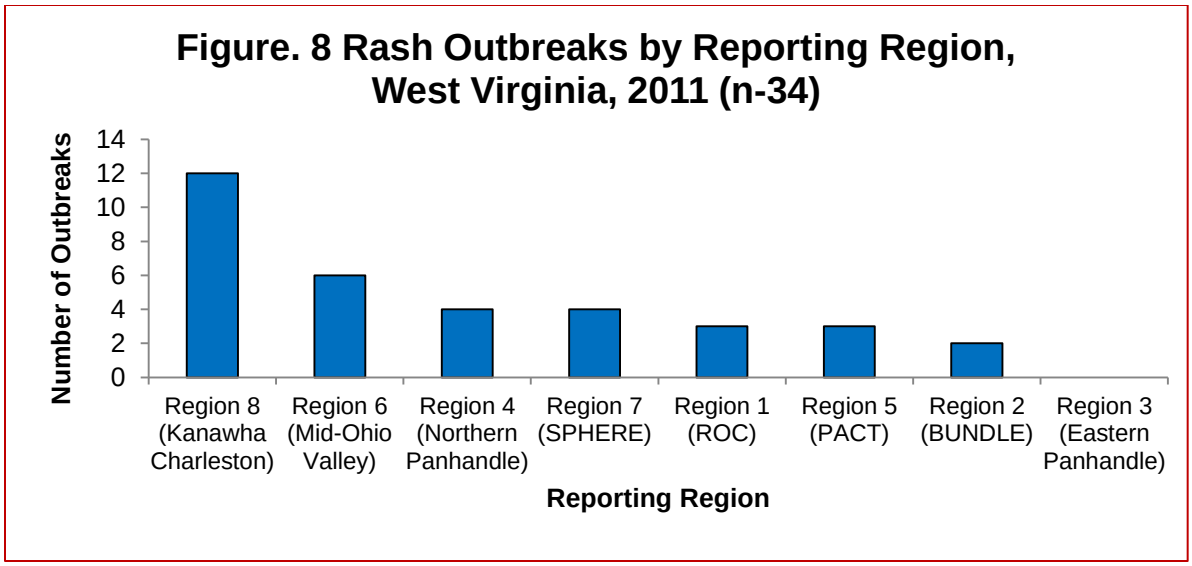
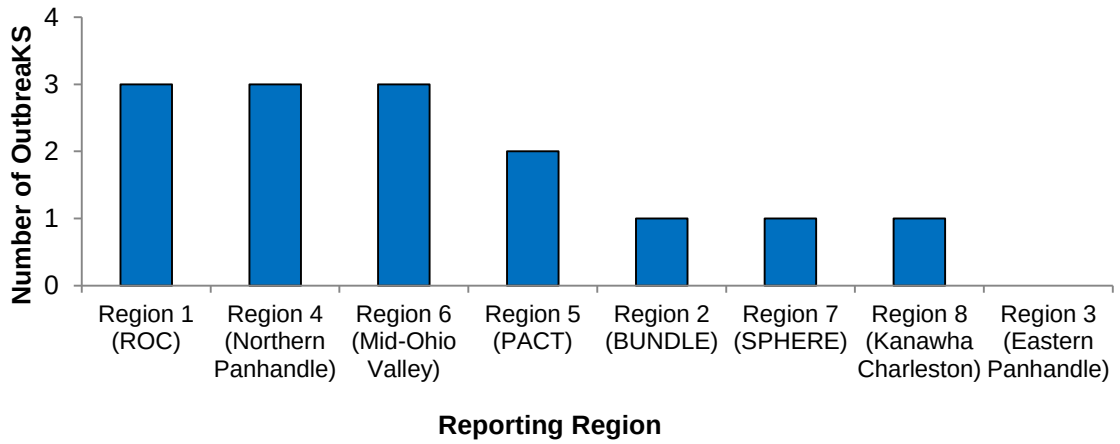


Table 9. Outbreaks of Rash Illness by Clinical Syndrome / Etiologic Agent, West Virginia, 2011

Clinical Diagnosis/ etiologic agents	Number of outbreaks	Percent
Varicella (Chickenpox)	14	41.2
Scabies	10	29.4
MRSA Skin Infection	2	5.9
MSSA Skin Infection	2	5.9
Fiftht Disease	2	5.9
Hand Foot and Mouth Disease	2	5.9
Herpes Gladiatorum	1	2.9
Ringworm / Dermatophytes	1	2.9
Total	34	100

In 2011, there were 14 outbreaks of varicella reported by 10 counties from 7 regions (Figure 9). Seven (50%) varicella outbreaks were laboratory confirmed and laboratory testing was not done in the other 7 outbreaks. The number of varicella outbreaks in 2011 decreased by 30% from the previous year. This decrease can be explained by the completion of the varicella project at the end of the 2010-2011 school-year. Active surveillance in public schools ended at that time, and the varicella outbreak definition was returned to the one that was used before the start of the varicella project; 5 epidemiologically linked cases of varicella from any given school, day care or long-term care facility, as opposed to 3 epidemiologically linked cases, which was used to define outbreaks during the varicella project

Figure. 9 Varicella Outbreaks by Reporting Region, West Virginia, 2011 (n=14)



Ten outbreaks of scabies were reported in 2011 (Table 10). Among scabies outbreaks, 1 was laboratory confirmed, 1 had negative or noncontributory laboratory testing and 8 did not have laboratory testing but were clinically confirmed. Eight outbreaks of scabies were reported from one region. The majority of scabies outbreaks (7) were reported in healthcare facilities, followed by group homes (2) and a school (1). 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 pimple-like skin rash. Scabies is transmitted from person-to-person by direct, prolonged, skin-to-skin contact.

Table 10. Outbreaks of Scabies by Transmission Setting, West Virginia, 2011

Transmission	Number of outbreaks	Percent
Hospitals	3	30
LTCFs	3	30
Group Homes	2	20
Outpatient Clinic	1	10
School	1	10
Total	10	100

Two outbreaks of methicillin-resistant *Staphylococcus aureus* (MRSA) skin infection were reported in the same daycare in February and August 2011. Both outbreaks were laboratory confirmed. Transmission was person-to-person in both outbreaks. MRSA is a common cause of skin and soft tissue infections among healthy individuals in the community without exposure to healthcare settings. Infections may appear as pustules or boils which often are red, swollen, painful, or have pus or other drainage and commonly occur at sites of visible skin trauma, such as cuts and abrasions, and areas of the body covered by hair.

There were also two outbreaks of laboratory confirmed methicillin-sensitive *Staphylococcus aureus* (MSSA) reported from schools.

Two outbreaks of Hand, Foot and Mouth Disease (HFMD) were reported from daycare facilities. 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.

In February 2011, an outbreak of herpes gladiatorim (HG) was reported among high school wrestlers competing at the 2011 state tournament. There were 21 cases of HG identified; 9 confirmed and 12 suspected. Of the 21 cases 19 were athletes and 2 were coaches with an attack rate of 3.5% among athletes and 3.2 among coaches. During the investigation, high prevalence of other skin conditions among athletes was noticed. Herpes gladiatorum can be transmitted through skin-to-skin contact, shared equipment and towels or poor personal hygiene.

Multidrug-Resistant organisms (MDROs) Outbreaks

MDROs outbreaks will be discussed under healthcare-associated outbreaks

"Other" Outbreaks

There were 6 (3.6%) recognized outbreaks in 2011 that were categorized as "other" (Table11). "Other" outbreaks were reported by 5 (9%) counties from 4 surveillance regions.

Table 11. Outbreaks Categorized as "Other" by Clinical Syndrome / Etiologic Agent, West Virginia, 2011

Etiologic Agent/Clinical Syndrome	Number of Outbreaks	Percent
Acute conjunctivitis	2	33.3
Aseptic Meningitis	2	33.3
Tsukamorella Blood Stream Infection (BSI)	1	16.7
Acute Febrile Headache	1	16.7
Total	6	100

Tsukamurellae Blood Stream infection (BSI) will be discussed under healthcare-associated outbreaks in a later section.

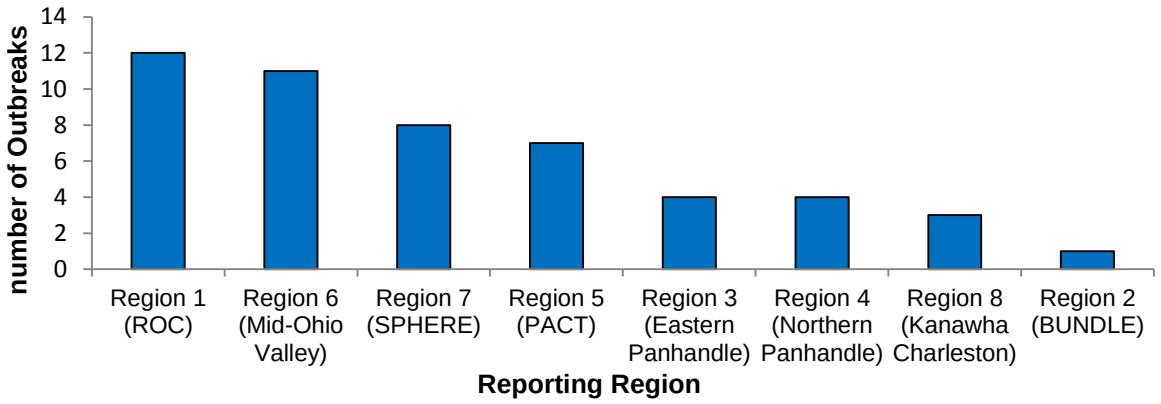
Two outbreaks of aseptic meningitis were reported in 2011. One was reported from school and the other from a daycare. In one outbreak enterovirus was confirmed by PCR testing and in the other outbreak no laboratory testing was done. Aseptic meningitis is an inflammation of the meninges caused by a virus, most frequently an enterovirus. Enterovirus is shed in the saliva and feces of infected persons. Control

measures include thorough hand hygiene after toilet use and avoid sharing drinks and utensils.
Two outbreaks of acute conjunctivitis were reported in 2011, one in a LTCF and the other in a Head Start. No laboratory testing was done in either outbreak.

Vaccine-Preventable Disease Outbreaks (VPDOs)

In 2011, 50 (29.8%) outbreaks reported from 29 counties (53%) in 8 regions were vaccine preventable outbreaks (Figure 10)

Figure 10. Vaccine-Preventable Disease Outbreaks By Reporting Region, West Virginia, 2011 (n=50)



The number of vaccine-preventable disease outbreaks increased from 27 in 2010 to 50 in 2011. This marked increase can be explained by the increase in influenza activities in 2011 with 34 seasonal influenza outbreaks reported in 2011 compared to zero influenza outbreaks in 2010. Seasonal influenza outbreaks were the most common vaccine-preventable disease outbreaks (34) followed by varicella (chickenpox) (14), and pertussis (2) (Table 12).

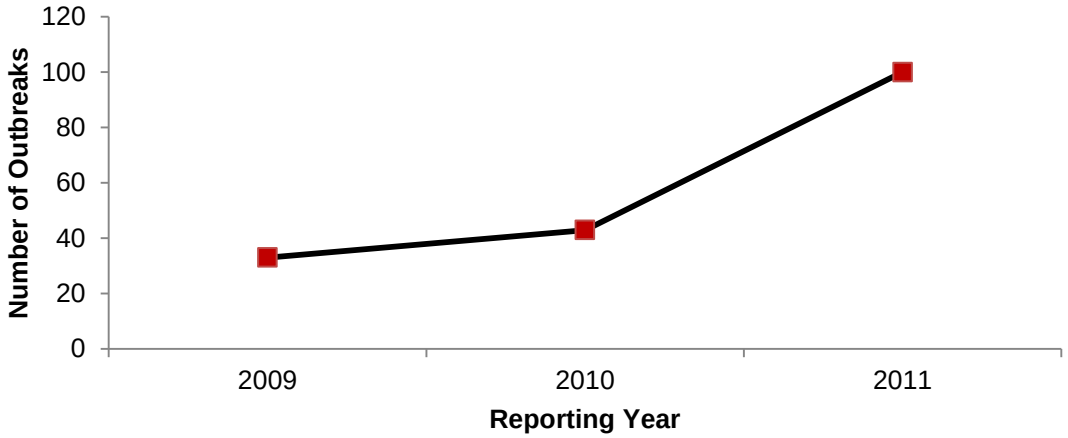
Table 12. Vaccine Preventable Disease Outbreaks by Etiologic Agent or Clinical Syndrome, West Virginia, 2011

Clinical Diagnosis / Etiologic Agents	Number of Outbreaks	Percent
Influenza (Seasonal)	34	68
Varicella	14	28
Pertussis	2	4
Total	50	100

Healthcare-Associated Outbreaks (HAOs):

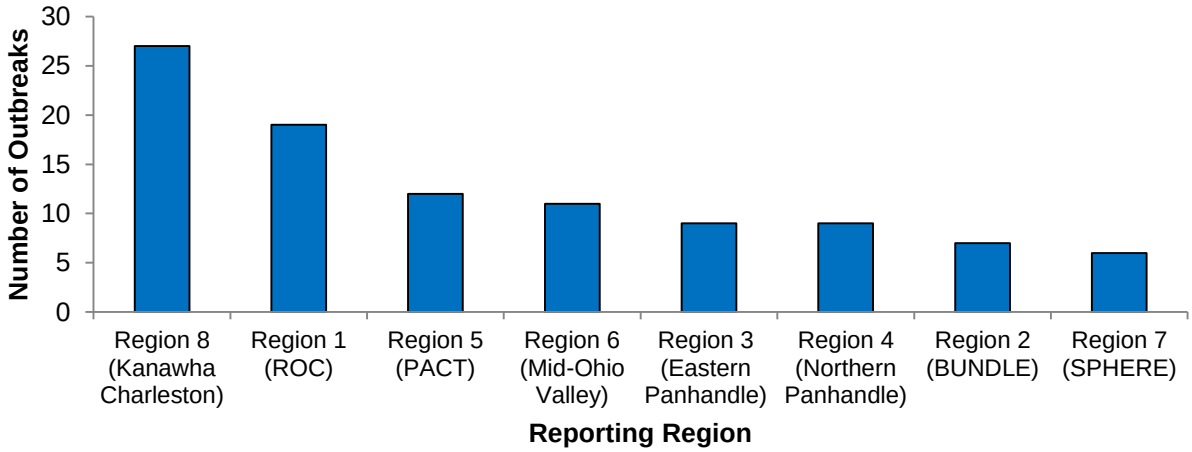
The number of HAOs reported in West Virginia increased by three folds since 2009 (Figure 11). HAOs are defined as “hospital-acquired or healthcare facility-acquired infections among patients or staff clustered temporally and/or geographically and represent an increase in the incidence over expected background rates”

Figure 11. Healthcare-Associated Outbreaks by Year of Reporting, West Virginia, 2009-2011 (n=176)

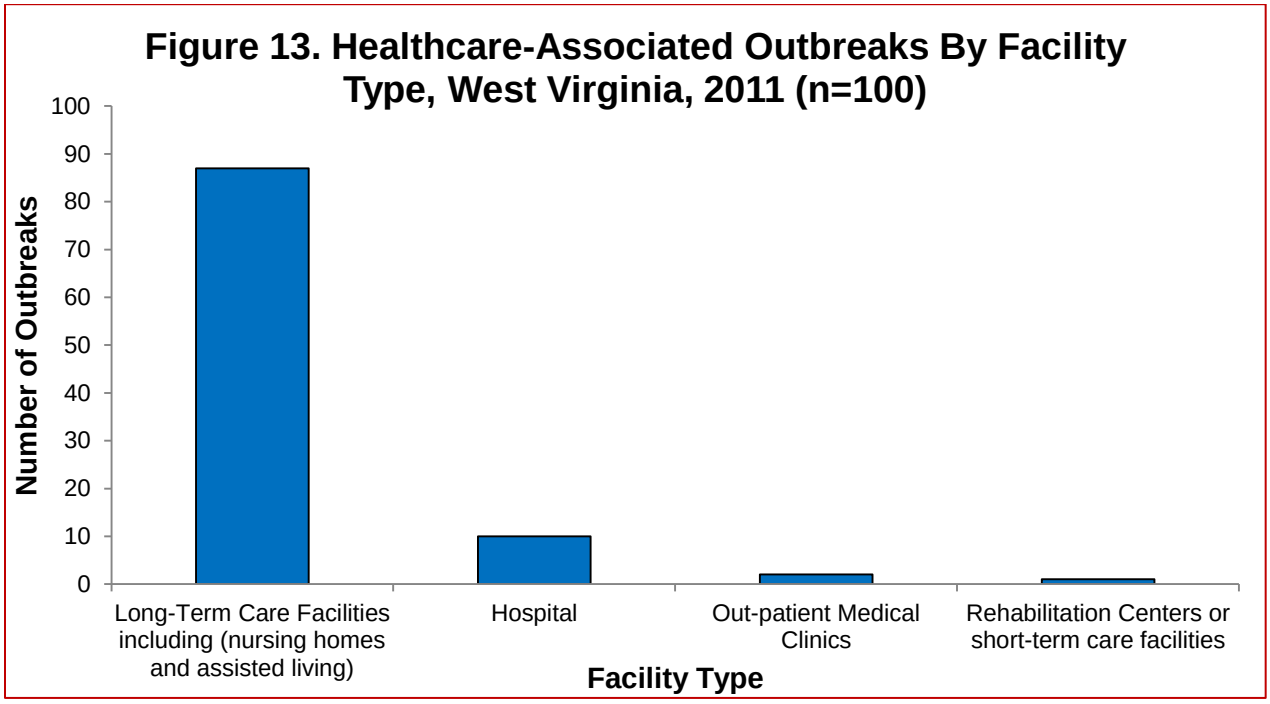


In 2011, 100 healthcare-associated outbreaks were reported from 29 (53%) counties in all regions (Figure 12). HAOs accounted for 60% of all confirmed outbreaks in West Virginia

Figure 12. Healthcare-Associated Outbreaks by Reporting Region, West Virginia, 2011 (n=100)



HAOs were reported in LTCFs 87 (87%), hospitals 10 (10%), outpatient medical clinics 2 (2%) and a rehabilitation center 1 (1%) (Figure13).

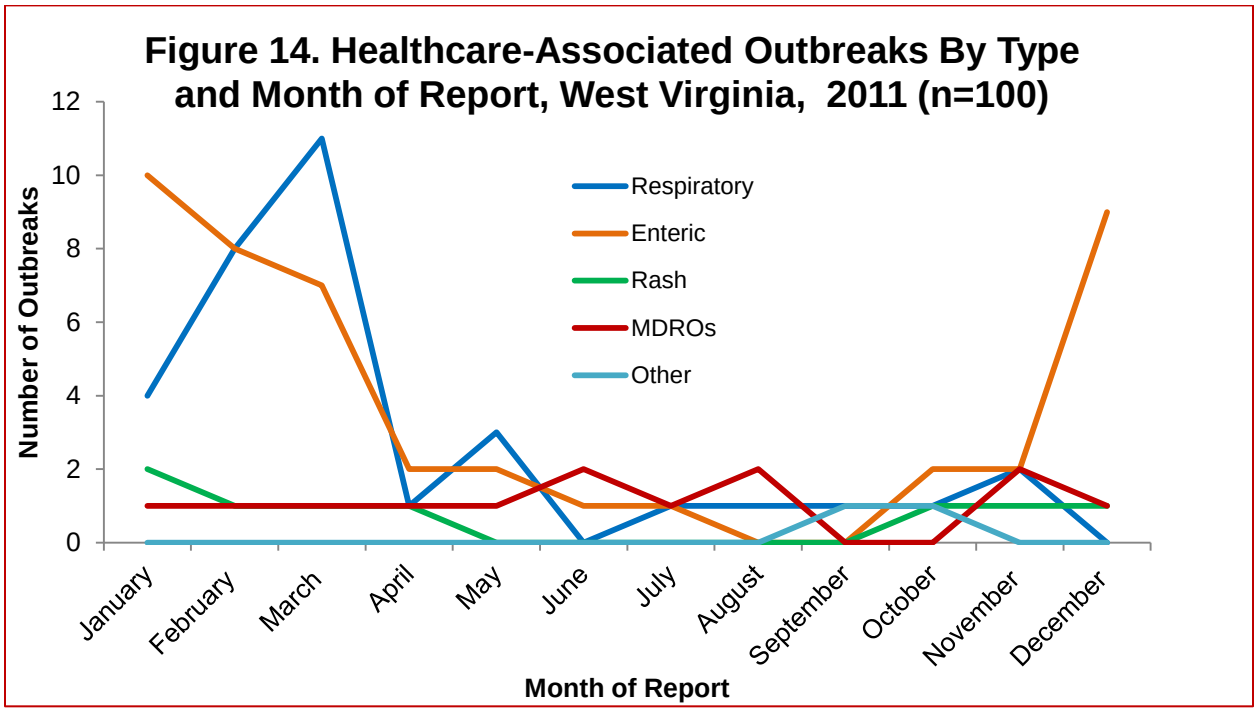


Enteric disease outbreaks accounted for the majority of healthcare-associated outbreaks 44 (44%) followed by respiratory disease outbreaks 34 (34%), and multidrug-resistant organism (MDROs) outbreaks 13 (13%) (Table 13).

Table 13. Healthcare-Associated Outbreaks by Type of Outbreak, West Virginia, 2011

Outbreak Type	Number of Outbreaks	Percent
Enteric	44	44
Respiratory	34	34
Multi-Drug Resistant Organisms (MDROs)	13	13
Rash	7	7
Other	2	2
Total	100	100

In 2011, the frequency of HAOs exhibits seasonality that matches the increased in influenza and norovirus activities throughout the year (Figure 14).



Healthcare-Associated Enteric Diseases Outbreaks

Enteric disease outbreaks (44) were the most common outbreak type reported in healthcare facilities in 2011. Outbreaks caused by Clostridium *difficile* were counted with the MDROs category. The majority of enteric disease outbreaks were reported in LTCFs (41) followed by hospitals (2) and rehabilitation center (1). Twenty six healthcare associated enteric disease outbreaks were laboratory confirmed, 13 did not have laboratory testing done and 5 had negative or non-contributory laboratory testing. All laboratory-confirmed enteric disease outbreaks were caused by norovirus.

Healthcare-Associated Respiratory Diseases Outbreaks

Respiratory disease outbreaks (34) were the second most common outbreak type reported in healthcare facilities. Eighteen outbreaks were laboratory-confirmed by culture/PCR, 5 were confirmed by rapid test, 9 had negative or noncontributory laboratory results and only 2 had no laboratory testing done.

Two outbreaks of RSV were reported in LTCFs. The first one characterized by mild respiratory illness and affected residents only. The attack rate was 11%. This outbreak was reported late to public health after most ill individuals recovered.
In the second RSV outbreak there were 24 residents with mixed symptoms of upper and lower respiratory illness. The attack rate among residents was 48%. Among ill residents there were 11 (46%) hospitalizations and 4 (17%) deaths. PCR testing for influenza was

negative and RSV was culture confirmed. There were no reported ill staff in this outbreak.

One acute respiratory illness outbreak reported from a LTCF was caused by rhinovirus. Testing for this outbreak was performed at CDC laboratory. Ill residents had illnesses range from mild upper respiratory symptoms to severe pneumonia. The attack rate among residents was 19%. Ill staff reported mild respiratory symptoms. Severe acute respiratory outbreaks caused by rhinovirus have been previously reported in LTCFs.

Table 14. Healthcare-Associated Respiratory Disease Outbreaks by Clinical Syndrome/Etiologic Agent, West Virginia, 2011

Clinical syndrome/Etiologic Agent	Number of Outbreaks	Percent
Influenza A H3	13	38.2
Acute Respiratory Illness (Undetermined etiology)	8	23.5
Influenza A	7	20.6
Pneumonia	3	8.9
Respiratory Syncytial Virus	2	5.9
Rhinovirus	1	2.9
Total	34	100

Healthcare-Associated Rash Illness Outbreaks

All rash illness HAOs were scabies. Three were reported from hospitals, 3 from LTCFs and one from an outpatient clinic. All scabies outbreaks were confirmed by clinical diagnosis. Laboratory confirmation was available in only one scabies outbreak.

Other Healthcare-Associated Outbreaks

Two HAOs were categorized as other. The first one was acute conjunctivitis in a LTCF. The second was an outbreak of *Tsukamurella* species blood stream infection among patients at an outpatient clinic. *Tsukamurella* species are very rare opportunistic organism that can be easily misidentified with other bacterial species. WVBPH requested laboratory and epidemiologic assistance from CDC in investigating this outbreak. Fourteen patients were identified with *Tsukamurella* species in blood and/or central venous catheter (CVC) tips. All patients had a central line in place at the time of onset and after the lines were removed, cultures became negative and the patients recovered. Although the exact source of this outbreak was not determined, several infection control breaches were identified in medication preparations and accessing central lines as well as environmental disinfections. Recommendations were given to the clinic to correct the identified breaches. Investigation of this outbreak is ongoing.

Multidrug-Resistant Organisms (MDROs) Outbreaks

Several MDROs outbreaks were reported in West Virginia for the first time in 2011. MDRO is defined as microorganisms, predominantly bacteria, that are resistant to one or more class of antimicrobial agents. MDROs 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. One case of an MDRO in a non-endemic facility is considered an outbreak.

In 2011, there were 13 outbreaks of MDROs including two outbreaks of *C. diff* reported by 8 counties in 6 surveillance regions (Figure 15)

Figure 15. Multi-Drug Resistant Organisms (MDROs) By Reporting Region, West Virginia, 2011 (n=13)

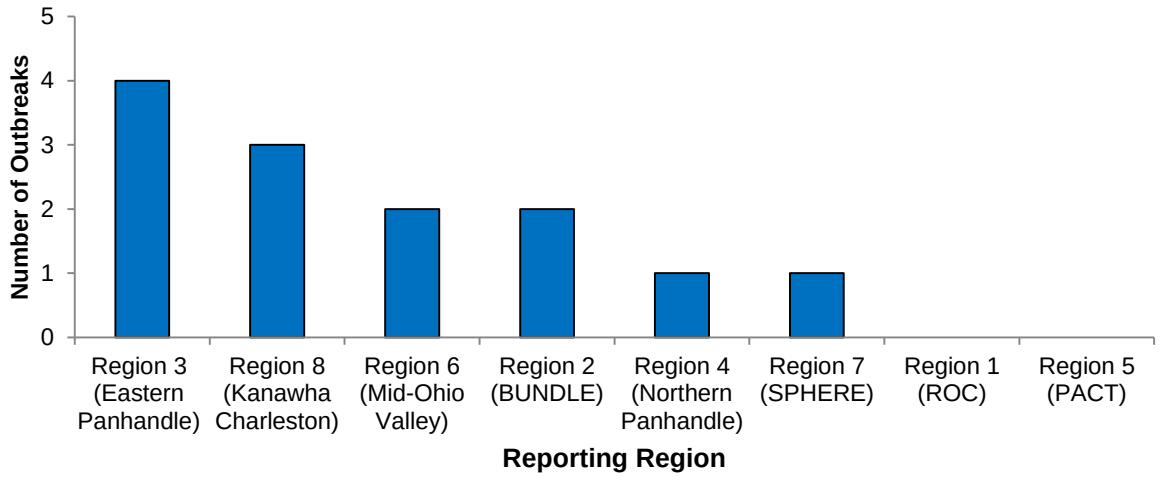


Table 15. Healthcare-associated MDROs Outbreaks by Etiologic Agents, West Virginia, 2011

Etiologic Agent	Number of Outbreaks	Percent
Carbapenem-Resistant *Klebsiella pneumoniae* (CRKP)	7	53.8
Other Carbapenem-Resistant *Enterobacteriaceae* (CRE)	2	15.4
Clostridium difficile	2	15.4
Methicillin-Resistant *Staphylococcus aureus* (MRSA)	1	7.7
Multidrug-Resistant *Acinetobacter baumanii*	1	7.7
Total	13	100

Outbreaks of Carbapenem-Resistant *Klebsiella pneumoniae* (CRKP) were reported in WV for the first time in 2011. CRKP is the most common carbapenem-resistant *Enterobacteriaceae* in the United States. CRKP is resistant to most available antimicrobial agents and associated with increased morbidity and mortality. CRKP infections are serious public health challenge because of easy transmission among healthcare facilities, limited options for treatment, high cost of hospitalizations and treatment, and high mortality rates.

Carbapenem-Resistant *Klebsiella pneumoniae* (CRKP) outbreaks 7 accounted for the majority of MDROs outbreaks reported in 2011. Of the 7 CRKP outbreaks 5 (71%) were reported in LTCFs and two were reported in hospitals. Additionally, the two hospital outbreaks were associated with LTCFs. Six CRKP outbreaks were controlled after stringent infection control measures were implemented and surveillance cultures of epidemiologically linked individuals revealed no additional cases.
The remaining outbreak is still ongoing in a LTCF since January 2011. Investigation identified 55 CRKP colonized and infected residents in this outbreak as of April, 2012. A matched case control study was completed to identify risk factors for infection. This study was published in MMWR at
http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6041a2.htm?s_cid=mm6041a2_x
Pulse Field Gel Electrophoresis (PFGE), conducted at CDC laboratory, confirmed that all isolates from clinical specimens, surveillance cultures and environmental samples were closely related. A second unmatched case control study was completed to identify risk factors for transmission within the facility. Risk factors for CRKP transmissions within the facility included: antimicrobial exposure, past history of other MDROs infection, and indwelling devices particularly central lines and urinary catheters.

There were also two outbreaks of Carbapenem-Resistant *Enterobacteriaceae* (CRE) reported from LTCFs. In one outbreak only two clinical cases were identified and in the other outbreak only one clinical case was identified. Further epidemiologic investigation and surveillance culture revealed no additional cases.

There was also an outbreak of MRSA reported in a hospital specialty care unit. A total of 21 cases of invasive and non-invasive MRSA were identified during 2011. PFGE at WV OLS indicated that of 5 of 8 isolates submitted have indistinguishable DNA fingerprint patterns. Investigation of this outbreak is ongoing.

One outbreak of multidrug resistant A*cinetobacter baumannii* was reported in a hospital. A total of five hospital-acquired clinical cases were identified. Recommendations were given to the facility to implement a strict infection control and environmental disinfection measures and change the disinfection protocol for ventilators. No further cases were reported.

There were two outbreaks of *Clostridium difficile* infection (CDI) reported in 2011. The first one was reported in an acute care facility and was also associated with few other LTCFs. In this outbreak, there were 16 cases of community acquired and 31 cases of healthcare facilities-associated over two months period. After implementing strict

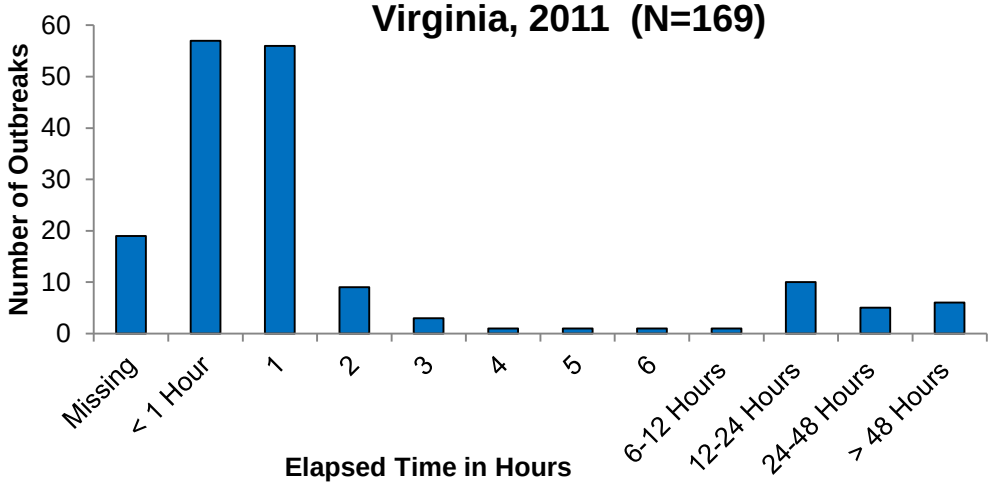
infection control measures the acute care facility was able to lower their incidence to zero facility-associated CDI cases.
The second CDI outbreak was reported in a LTCF. Six cases were identified over few weeks, 2 were associated with the LTCF and 4 were associated with other healthcare facilities in the region with onset at this LTCF. Both outbreaks underscore the necessity of healthcare facilities to work together to control CDI and other MDRO transmission.

Outbreak Reporting Time

In West Virginia, outbreaks are immediately reportable to the local health department. According to infectious disease rules and regulations and as a condition of receiving threat preparedness funding local health departments are required to report immediately suspected outbreaks or clusters to the Bureau for Public Health, Division of Infectious Disease Epidemiology (DIDE) within 60 minutes.
To measure adherence to this requirement, date and time of report to the local health department and date and time of report to DIDE are recorded on a standard intake form so that elapsed reporting time can be calculated.

For 2011, 19 (11.2%) outbreaks were missing the date or time of report to the local health department or the state health department or both (Figure 16). Of the remaining 150 (89.8%) outbreaks, a mean 8.8 hours and a median of 1 hour elapsed between the time the outbreak was reported to the local health department and the time the outbreak was reported to the state health department. The range of hours between the time the outbreak was reported to the local health department and the time the outbreak was reported to the state health department was 0 to 240 hours. Of the 150 outbreaks where date of notification was known for the state and local health department, same-day notification occurred for 139 (92%) outbreaks.

Figure 16. Elapsed Time for Reporting Outbreaks Between State and Local Health Departments, West Virginia, 2011 (N=169)



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 improvements. The following summarizes our progress and highlights future recommendations:

1. Outbreaks are immediately notifiable in West Virginia and should be reported to the Bureau for Public Health, DIDE within 60 minutes. 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. West Virginia Office of Laboratory Services (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. Coordination and timely communication between epidemiology and laboratory staff is essential in outbreak management and control.
3. The use of standard outbreak protocols has tremendous impact on improving outbreak investigation and control. DIDE has developed several outbreak toolkits for the most commonly encountered outbreaks, such as influenza, pneumonia, norovirus, and scabies. Toolkits for investigating MDROs and CDI outbreaks in LTCFs were also developed. DIDE will continue to develop new toolkits and protocols to assist partners in outbreak investigation and to maintain its website with up-to-date information. DIDE's web site is www.dide.wv.gov
4. DIDE continues to improve feedback of information on outbreaks and outbreak investigation during 2011and beyond. In addition to the yearly outbreak report, DIDE continue to release via emails a monthly report on outbreaks to provide timely details on reported outbreaks in the state to public health partners and healthcare providers. The monthly report is also posted on the website.
5. DIDE completed evaluation of foodborne outbreak response at both the state and regional level, using the Toolkit and Guidelines provided by the Council to Improve Foodborne Outbreak Response. Notification and complaint systems were the main area identified at the state level needing attention. As a result of this evaluation, a standardized complaint module was added to the electronic environmental health software package that was currently under development and pilot testing begins July 1, 2012 in 10 local health departments. Each surveillance region has evaluated response and identified specific focus areas for their region to work on.
6. Foodborne disease outbreaks are not uncommon and can cause serious illness. The timely response to foodborne illness reports is crucial to control outbreaks and identify potential sources. Obtaining laboratory samples is critical to guide

the recommendations and allow confirmation of potential common transmission sources.

7. DIDE will continue to participate in electronic reporting of all enteric outbreaks in the National Outbreak Reporting System (NORS).
8. DIDE is committed to provide regular training on outbreak management to the state, regional and local public health personnel. A state-wide training in outbreak investigation is scheduled for mid-year in 2012.

Observations from healthcare-associated outbreaks (HAOs)

1- 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. LTCFs can be reservoirs for MDROs and facilitate transmission of these infections across the spectrum of health care. Identification and management of outbreaks in LTCFs can be challenging for the facility staff, healthcare providers and public health because of the following obstacles:
   - a- Lack of dedicated infection preventionists (IPs) in each facility. IPs usually have multiple responsibilities in addition to infection control.
   - b- Limited resources for the (IPs) particularly in training and education.
   - c- Staffing issues, such as rapid turn-over, occasional understaffing, and lack of regular training in infection control.
   - d- Scarce on-site physician availability.
   - e- Excessive use of antibiotics
   - f- Low technology setting, limited diagnostic tools, and scarce resources
   - g- Low immunization rates especially among staff
   - h- Challenges in balancing infection control measures and psychosocial needs of the residents.
   - i- Inconsistent utilization of existing surveillance system

2- Some LTCFs contract either out-of-state or in-state laboratories that do not test or test and do not report MDROs status to these facilities. This represents a major challenge for these facilities to identify and manage MDRO outbreaks

3- MDRO outbreaks are challenging and represent a major burden for healthcare facilities, providers and public health and are associated with high morbidity and mortality rates due to the limited or no availability of treatment options.

4- Since MDRO outbreaks affect all healthcare facilities in a geographical area or a region, regional approach is the most effective way to prevent the emergence and further spread of these infections.

DIDE strategies for controlling MDR Outbreaks

Control and prevent the spread of MDROs outbreaks in long-term and acute care settings is a priority for the West Virginia Bureau for Public Health. The following actions have been completed or ongoing

1- Two trainings on identification and management of MDROs outbreaks were provided to public health staff during 2011.

2- DIDE provided to all licensed LTCFs in the state the following APIC manuals: Infection control and prevention in LTCFs, Guidelines for Elimination of MRSA and Guidelines for Elimination of C. diff in Healthcare Settings.

3- Two regional meetings were held to discuss collaborative approach to MDRO outbreaks. These two meetings were attended by staff of acute care and LTCFs, LHDs and DIDE.
4- The ongoing investigation of an MDRO outbreak was published in MMWR in collaboration with CDC to increase awareness of these outbreaks at the state and national levels. http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6041a2.htm?s_cid=mm6041a2_x
5- A long-term care working group in association with the HAI multi-advisory group was established to address the infection control issues in LTCFs.
6- Toolkits for MDROs and CDI outbreaks in LTCFs were developed and posted on the website.

DIDE's Objectives for 2012 and beyond:

DIDE is committed to complete the following objectives in 2012 and beyond:

1- In response to an annual needs assessment, and evaluation of 2011 outbreaks, a training curriculum in MDROs was developed and designed to be provided in each surveillance region during 2012. This regional training will be provided to LTCFs, acute care and LHDs
2- If funding is available:
   - An MDRO needs assessment survey for acute care, LTCFs, and laboratories will be conducted during 2012. Results will be used to plan regional prevention collaborates.
   - WVBPH will require mandatory reporting of CRKP and CDI from laboratories and healthcare facilities including LTCFs to National Healthcare Safety Network (NHSN).
   - DIDE will assist each region to develop and implement MDRO regional prevention collaborative.
3- WVOLS is working to be able to provide antimicrobial susceptibility testing and molecular typing for MDROs during HAO investigation.
4- Outbreaks in Ambulatory Surgical Centers (ASCs) can be severe and challenging to identify and manage. DIDE sponsored APIC to provide a course in infection control to all ambulatory care centers in 2011. However, training on infection control should be provided on a regular basis to these facilities. Training in HAO investigation particularly outbreaks in ASCs should be provided to DIDE staff.
5- The WV 2012 HAI plan aims to improve identification and management of HAI outbreaks through the following strategies:
   - Present the findings and recommendations from this report to the HAI Advisory Group as well as WV APIC section as the basis for an annual needs assessment.
   - Collaborate with representatives of the Office of Health Facility Licensure and Certification, the Board of Medicine, the Board of Osteopathy, the Board of Dental Examiners, Board of Pharmacy, and the Board of Examiners for Registered Professional Nurses in outbreak notification and investigation.

- Provide training for health department staff to investigate outbreaks, clusters or unusual cases of HAIs.
- Revise of the reportable disease rule, during 2012, to include healthcare associated outbreaks in the list of reportable conditions to be effective July 1, 2013
- Continue to work with partners including CSTE, CDC, state legislatures, and providers across the healthcare continuum to improve outbreak reporting to state health departments

Appendix Summary Outbreak Tables for 2010, West Virginia

Sequence Number	Date and Time Reported to LHD	Date and Time Reported to State	Elapsed Time in Minutes	Elapsed Time in Hours	Region	Jurisdiction	Clinical Diagnosis	Etiologic Agent	Final Case Count	Labs	Transmission	Modes of transmission or source of illness
1	1/3/2011 8:00	1/3/2011 9:00	60	1	Region 7 (SPHERE)	WV	Norovirus Gastroenteritis	Norovirus Genotype I	Residents: 20	Lab Confirmed	LTCF	Person-to-person
2	1/5/2011 9:30	1/5/2011 9:40	10	0	Region 4 (Northern Panhandle)	WV	Norovirus Gastroenteritis	Norovirus Genotype I	Residents 43/106 (AR: 41%) and Staff 33/95 (AR= 35%)	Lab Confirmed	LTCF	Person-to-person
3	1/6/2011 14:30	1/6/2011 14:50	20	0	Region 8 (Kanawha Charleston)	WV	Scabies	Sarcoptes scabiei	Staff: 35 and patients: 4	Lab Confirmed	Hospital	Person-to-person
4	1/11/2011 9:15	Missing	Missing	Missing	Region 4 (Northern Panhandle)	WV	Norovirus Gastroenteritis	Norovirus Genotype II	Residents: 16/172 (AR: 9.3%) and Staff 12/104 (AR: 11.5%)	Lab Confirmed	LTCF	Person-to-person
5	1/12/2011 11:15	1/12/2011 11:30	15	0	Region 1 (ROC)	WV	Norovirus Gastroenteritis	Norovirus Genotype I	Residents 32/115 (AR: 28%) and staff 46/153 (AR: 30%)	Lab Confirmed	LTCF	Person-to-person
6	1/11/2011 13:00	1/12/2011 11:55	1375	22	Region 3 (EPHRT)	Multi-state	Pertussis	*Bordetella pertussis*	Confirmed cases:1 and Probable cases: 5	Lab Confirmed	Community	Person-to-person

Sequence Number	Date and Time Reported to LHD	Date and Time Reported to State	Elapsed Time in Minutes	Elapsed Time in Hours	Region	Jurisdiction	Clinical Diagnosis	Etiologic Agent	Final Case Count	Labs	Transmission	Modes of transmission or source of illness
7	1/12/2011 13:00	1/12/2011 13:40	40	0	Region 3 (EPHRT)	WV	Influenza A H3	Influenza A H3	Residents: 22 /120 (AR=18%)	Lab Confirmed	LTCF	Person-to-person
8	1/13/2011 10:15	1/13/2011 10:18	3	0	Region 5 (PACT)	WV	Norovirus Gastroenteritis	Norovirus Genotype I	Resident 15/44 (AR: 34%) Staff 6/70 (AR: 8.5%)	Lab Confirmed	LTCF	Person-to-person
9	Missing	Missing	Missing	Missing	Region 8 (Kanawha Charleston)	WV	Scabies	Undetermined	Residents 4/127 (AR: 3%)	Lab test not done	LTCF	Person-to-person
10	Missing	Missing	Missing	Missing	Region 8 (Kanawha Charleston)	WV	Acute Gastroenteritis	Undetermined	Residents: 12/117 (AR10%) and Staff: 10	Lab test negative or noncontributory	LTCF	Person-to-person
11	Missing	Missing	Missing	Missing	Region 5 (PACT)	WV	Norovirus Gastroenteritis	Norovirus Genotype I	Residents 16/110 (AR= 15%) Staff 20/145 (AR= 14%)	Lab Confirmed	LTCF	Person-to-person
12	1/20/2011 14:50	1/20/2011 2:50	721	13	Region 5 (PACT)	WV	Acute Gastroenteritis	Undetermined	Residents: 20/57 (AR 35%)	Lab test not done	LTCF	Person-to-person
13	1/21/2011 15:00	1/21/2011 15:30	30	0	Region 5 (PACT)	WV	Norovirus Gastroenteritis	Norovirus Genotype II	Residents 35/79 (AR: 44%) Staff 10/127 (AR: 8%)	Lab Confirmed	LTCF	Person-to-person

Sequence Number	Date and Time Reported to LHD	Date and Time Reported to State	Elapsed Time in Minutes	Elapsed Time in Hours	Region	Jurisdiction	Clinical Diagnosis	Etiologic Agent	Final Case Count	Labs	Transmission	Modes of transmission or source of illness
14	1/21/2011 17:30	1/21/2011 17:45	15	0	Region 8 (Kanawha Charleston)	WV	Acute Respiratory Illness	Undetermined	Residents: 6/96 with URI(AR:6%)	Lab test negative or noncontributory	LTCF	Person-to-person
15	1/27/2011 9:30	1/27/2011 10:00	30	1	Region 8 (Kanawha Charleston)	WV	Norovirus Gastroenteritis	Norovirus Genotype II	Residents 22/92 (AR: 24%) Staff 6/96 (AR: 6%)	Lab Confirmed	LTCF	Person-to-person
16	1/11/2011 11:30	1/12/2011 9:30	1320	22	Region 4 (Northern Panhandle)	WV	Influenza A H3	Influenza A H3	Residents 16/172 (AR: 9%) Staff 12/104 (AR: 11.5%)	Lab Confirmed	LTCF	Person-to-person
17	1/27/2011 10:30	1/27/2011 11:00	30	1	Region 3 (EPHRT)	WV	Multiple clinical presentations	Carbapenem-Resistant *Klebsiella pneumoniae* (CRKP)	(55) Ongoing investigation	Lab Confirmed	Hospital / LTCF	Person-to-person
18	1/28/2011 14:00	1/28/2011 14:15	15	0	Region 6 (Mid-Ohio Valley)	WV	Influenza A H3	Influenza A H3	Residents 26/63 (AR: 41%) Staff 11/78 (AR: 14%) 6 cases of Pneumonia	Lab Confirmed	LTCF	Person-to-person
19	1/24/2011 14:58	1/24/2011 16:00	62	2	Region 7 (SPHERE)	WV	Influenza B	Influenza B	Absentees rate 17.2% for School A and 9.6% for School B	Lab Confirmed	Schools	Person-to-person

Sequence Number	Date and Time Reported to LHD	Date and Time Reported to State	Elapsed Time in Minutes	Elapsed Time in Hours	Region	Jurisdiction	Clinical Diagnosis	Etiologic Agent	Final Case Count	Labs	Transmission	Modes of transmission or source of illness
20	2/2/2011 15:48	2/2/2011 15:05	44	0	Region 8 (Kanawha Charleston)	WV	Influenza A H3	Influenza A H3	Residents 20/110 (AR: 18.2%) and Staff 3/135 (AR: 2.2%)	Lab confirmed	LTCF	Person-to-person
21	2/3/2011 15:30	2/3/2011 16:00	30	1	Region 4 (Northern Panhandle)	WV	Ringworm / Dermatophytes	Undetermined	Students: 7 and Staff 2 (6 confirmed and 3 probable cases)	Lab test not done	School	Person-to-person
22	2/3/2011 11:30	Missing	Missing	Missing	Region 2 (BUNDLE)	WV	Norovirus Gastroenteritis	Norovirus Genotype II	Patients 12/19 (AR: 63%) Staff 11/35 (AR: 31%)	Lab Confirmed	Hospital	Person-to-person
23	Missing	Missing	Missing	Missing	Region 4 (Northern Panhandle)	WV	Acute Gastroenteritis	Undetermined	Residents 55/106 (AR: 52%) Staff 51/138 (AR:37%)	Lab test negative or noncontributory	LTCF	Likely point source with secondary person-to-person transmission
24	2/4/2011 9:00	2/4/2011 9:30	30	0	Region 6 (Mid-Ohio Valley)	WV	Influenza A H3	Influenza A H3	Absentee rate 14%	Lab confirmed	school	Person-to-person
25	2/7/2011 13:50	2/7/2011 14:30	40	1	Region 8 (Kanawha Charleston)	WV	Norovirus Gastroenteritis	Norovirus Genotype II	Residents 11/96 (AR12%) Staff 12/?	Lab Confirmed	LTCF	Person-to-person
26	2/7/2011 10:47	2/7/2011 11:15	28	1	Region 7 (SPHERE)	WV	Influenza B	Influenza B	Absentee rate 21.9%	Rapid test positive but not culture confirmed	School	Person-to-person

Sequence Number	Date and Time Reported to LHD	Date and Time Reported to State	Elapsed Time in Minutes	Elapsed Time in Hours	Region	Jurisdiction	Clinical Diagnosis	Etiologic Agent	Final Case Count	Labs	Transmission	Modes of transmission or source of illness
27	2/7/2011 10:00	2/7/2011 10:30	30	0	Region 6 (Mid-Ohio Valley)	WV	Influenza-like illness	Undetermined	Absentee rate 23.1%	Lab test not done	School	Person-to-person
28	2/7/2011 10:00	2/7/2011 10:30	30	0	Region 6 (Mid-Ohio Valley)	WV	Influenza A H1N1	Influenza A H1N1	Absentee rate 18%	Lab Confirmed	School	Person-to-person
29	Missing	Missing	Missing	Missing	Region 8 (Kanawha Charleston)	WV	Acute Gastroenteritis	Undetermined	Residents 20/129 (AR: 16%)	Lab test not done	LTCF	Person-to-person
30	2/8/2011 14:30	2/8/2011 14:50	20	0	Region 1 (ROC)	WV	Influenza A H3	Influenza A H3	Absentee rate 24%	Lab Confirmed	School	Person-to-person
31	2/8/2011 14:00	2/8/2011 15:00	60	1	Region 1 (ROC)	WV	Influenza B	Influenza B	Absentee rate 21%	Rapid test positive but not culture confirmed	School	Person-to-person
32	2/7/2011 15:30	Missing	Missing	Missing	Region 1 (ROC)	WV	Influenza A H3	Influenza A H3	Highest Absentees Rate 17%	Lab Confirmed	School	Person-to-person
33	2/8/2011 13:51	2/8/2011 14:02	11	1	Region 8 (Kanawha Charleston)	WV	Varicella	Varicella Zoster Virus	Students 3/450 (AR: 0.7%)	Lab Confirmed	School	Person-to-person
34	Missing	2/11/2011 14:30	Missing	Missing	Region 8 (Kanawha Charleston)	WV	Skin Infection	Methicillin-Resistant *Staphylococcus aureus* (MRSA)	Children 3/12 (AR:25%)	Lab Confirmed	Daycare	Person-to-person

Sequence Number	Date and Time Reported to LHD	Date and Time Reported to State	Elapsed Time in Minutes	Elapsed Time in Hours	Region	Jurisdiction	Clinical Diagnosis	Etiologic Agent	Final Case Count	Labs	Transmission	Modes of transmission or source of illness
35	2/14/2011 11:00	2/11/2011 16:10	4011	68	Region 4 (Northern Panhandle)	WV	Varicella	Varicella Zoster Virus	Students: 12/889 (AR: 1.4)	Lab Confirmed	School	Person-to-person
36	2/11/2011 10:00	2/11/2011 10:30	30	0	Region 7 (SPHERE)	WV	Influenza-Like Illness	Undetermined	Absentee rate 31%	Lab test not done	School	Person-to-person
37	2/11/2011 11:30	2/11/2011 12:00	30	1	Region 7 (SPHERE)	WV	Influenza	Influenza	Athletes 12/140 (AR: 8.6%)	Rapid test positive but not culture confirmed	Sports team	Person-to-person
38	2/14/2011 12:58	2/14/2011 13:00	2	1	Region 5 (PACT)	WV	Varicella	Undetermined	Students 23/409 (AR: 5.6%)	Lab test not done	School	Person-to-person
39	Missing	Missing	Missing	Missing	Region 5 (PACT)	WV	Acute Respiratory Illness	Respiratory Syncytial Virus	Attendees 16/110 with URI (AR 14.5%)	Rapid test positive but not culture confirmed	Daycare	Person-to-person
40	2/15/2011 8:45	2/15/2011 9:00	15	1	Region 8 (Kanawha Charleston)	WV	Influenza-like Illness	Undetermined	Children 34/120 (AR: 28%) and Adults 9/30 (AR: 30%)	Lab test not done	Daycare	Person-to-person
41	2/15/2011 13:30	2/15/2011 13:15	16	0	Region 8 (Kanawha Charleston)	WV	Norovirus Gastroenteritis	Norovirus Genotype II	Residents 22/58 (AR 38%) Staff 10/50 (AR 20%)	Lab Confirmed	LTCF	Person-to-person
42	2/14/2011 14:20	2/14/2011 14:52	32	0	Region 1 (ROC)	WV	Influenza A H3	Influenza A H3	Residents 14/55 (AR 25%) and Staff 25/73 (AR 34%)	Lab Confirmed	LTCF	Person-to-person

Sequence Number	Date and Time Reported to LHD	Date and Time Reported to State	Elapsed Time in Minutes	Elapsed Time in Hours	Region	Jurisdiction	Clinical Diagnosis	Etiologic Agent	Final Case Count	Labs	Transmission	Modes of transmission or source of illness
43	2/15/2011 14:00	2/15/2011 15:55	115	1	Region 6 (Mid-Ohio Valley)	WV	Influenza A H1N1	Influenza A H1N1	Absentee rate 10.7%	Lab Confirmed	school	Person-to-person
44	2/17/2011 8:30	2/17/2011 9:00	30	1	Region 7 (SPHERE)	WV	Influenza A H3	Influenza A H3	Absentee rate 25%	Lab Confirmed	School	Person-to-person
45	2/17/2011 12:00	2/15/2011 13:00	2821	48	Region 1 (ROC)	WV	Varicella	Undetermined	Students 12/450 (AR: 2.7%)	Lab test not done	School	Person-to-person
46	2/18/2011 9:15	2/18/2011 10:00	45	1	Region 7 (SPHERE)	WV	Influenza A H3	Influenza A H3	Resident: 9/84 (AR: 11%)	Lab Confirmed	LTCF	Person-to-person
47	Missing	Missing	Missing	Missing	Region 1 (ROC)	WV	Acute Gastroenteritis	Undetermined	Resident 6/24 (AR 25%)	Lab test not done	LTCF	Person-to-person
48	Missing	2/15/2011	Missing	Missing	Region 1 (ROC)	WV	Influenza A	Influenza A	Resident 17/28 (AR 61%)	Rapid test positive but not culture confirmed	LTCF	Person-to-person
49	Missing	2/22/2011 11:15	Missing	Missing	Region 2 (BUNDLE)	WV	BSI and other Clinical Presentations	Methicillin-Resistant *Staphylococcus aureus* (MRSA)	Missing	Lab Confirmed	Hospital	Person-to-person
50	Missing	Missing	Missing	Missing	Region 7 (SPHERE)	WV	Acute Gastroenteritis	Undetermined	Resident 8/64 (AR:13%)	Lab test negative or noncontributory	LTCF	Likely Point source

Sequence Number	Date and Time Reported to LHD	Date and Time Reported to State	Elapsed Time in Minutes	Elapsed Time in Hours	Region	Jurisdiction	Clinical Diagnosis	Etiologic Agent	Final Case Count	Labs	Transmission	Modes of transmission or source of illness
51	2/23/2011 10:40	2/23/2011 10:45	5	0	Region 5 (PACT)	WV	Influenza A H3	Influenza A H3	Resident 3/115 (AR: 2.6%)	Lab Confirmed	LTCF	Person-to-person
52	2/23/2011 13:00	2/23/2011 13:20	20	0	Region 5 (PACT)	WV	Influenza A	Influenza A	Resident 7/95 (AR:7 %) Staff 11/120 (AR: 9%)	Rapid test positive but not culture confirmed	LTCF	Person-to-person
53	2/22/2011 15:15	2/22/2011 15:44	29	0	Region 6 (Mid-Ohio Valley)	WV	Influenza A HIN1, A H3 and Influenza B	Influenza A HIN1, A H3 and Influenza B	Absentee rates range from 7.0% to 25%	Lab Confirmed	Schools	Person-to-person
54	2/24/2011 8:30	2/24/2011 9:00	30	1	Region 7 (SPHERE)	WV	Influenza A H3	Influenza A H3	Absentee rate 41%	Lab Confirmed	School	Person-to-person
55	2/25/2011 8:30	2/25/2011 10:15	105	2	Region 3 (EPHRT)	wv	Norovirus Gastroenteritis	Norovirus Genotype II	Residents 51/120 (AR 43%) Staff 39	Lab confirmed	LTCF	Person-to-person
56	2/23/2011 14:15	2/23/2011 15:00	45	1	Region 7 (SPHERE)	WV	Herpes Gladiatorum	herpes simplex type 1	Athletes 19/545 (AR= 3.5%) and Coaches 2/62 (AR=3.2%)	Lab Confirmed	school	Person-to-person
57	2/25/2011 12:30	2/25/2011 13:00	30	1	Region 8 (Kanawha Charleston)	WV	Scabies	Undetermined	Staff: 2	Lab test not done	Hospital	Person-to-person
58	2/28/2011 11:15	2/28/2011 12:02	47	1	Region 6 (Mid-Ohio Valley)	WV	Acute Respiratory Illness	Respiratory Syncytial Virus	Residents 24/50 with URI and LRI (AR 48%)	Lab Confirmed	LTCF	Person-to-person

Sequence Number	Date and Time Reported to LHD	Date and Time Reported to State	Elapsed Time in Minutes	Elapsed Time in Hours	Region	Jurisdiction	Clinical Diagnosis	Etiologic Agent	Final Case Count	Labs	Transmission	Modes of transmission or source of illness
59	2/28/2011 11:15	2/28/2011 12:02	47	1	Region 6 (Mid-Ohio Valley)	WV	Influenza A H3	Influenza A H3	Residents 16/125 (AR 12.8%) Staff 14/171 (AR 8%)	Lab Confirmed	LTCF	Person-to-person
60	2/28/2011 15:50	3/1/2011 8:00	970	17	Region 5 (PACT)	WV	Influenza A H3	Influenza A H3	Residents: 11/106 (10.4%) and Staff: 5	Lab Confirmed	LTCF	Person-to-person
61	3/1/2011 15:25	3/1/2011 16:05	40	1	Region 1 (ROC)	WV	Influenza A	Influenza A	Residents: 12/54 (AR: 22.2%)	Lab Confirmed	LTCF	Person-to-person
62	3/2/2011 13:45	3/2/2011 13:58	13	0	Region 6 (Mid-Ohio Valley)	WV	Influenza A H3	Influenza A H3	Residents: 12/57 (AR 21%), Staff: 4/50 (AR 8%)	Lab Confirmed	LTCF	Person-to-person
63	3/2/2011 15:00	3/2/2011 15:30	30	0	Region 1 (ROC)	WV	Influenza A	influenza A	Residents: 8/56 (AR 14.3%), Staff: 5/86 (AR 5.8%)	Rapid test positive but not culture confirmed	LTCF	Person-to-person
64	3/4/2011 11:20	3/4/2011 11:42	22	0	Region 5 (PACT)	WV	Influenza A	influenza A	Residnts 3 & Staff 3	Lab Confirmed	LTCF	Person-to-person
65	3/4/2011 13:50	3/4/2011 14:02	12	1	Region 3 (EPHRT)	WV	Norovirs and Rotavirus Gastroenteritis	Norovirs and Rotavirus	Patients 4 and Staff 12	Lab Confirmed	Hospital	Person-to-person
66	3/4/2011 8:00	3/4/2011 12:00	240	4	Region 6 (Mid-Ohio Valley)	WV	Multiple clinical presentations	Multi-Drug Resistant *Acinetobacter baumanii*.	Patients: 12	Lab Confirmed	Hospital	Person-to-person

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67	3/4/2011 14:20	3/4/2011 15:02	42	1	Region 8 (Kanawha Charleston)	WV	Scabies	Undetermined	Residents: 11	Lab test negative or noncontributory	LTCF	Person-to-person
68	3/3/2011 14:00	Missing	Missing	Missing	Region 1 (ROC)	WV	Acute Gastroenteritis	Undetermined	Residents 21/128 (AR 16%) and Staff 11/110 (AR 10%)	Lab test not done	LTCF	Person-to-person
69	3/2/2011 15:50	3/2/2011 16:15	25	1	Region 5 (PACT)	WV	Acute Gastroenteritis	Undetermined	Patients 4 and Staff 10	Lab test not done	Hospital	Person-to-person
70	3/7/2011 9:05	3/7/2011 10:00	55	1	Region 1 (ROC)	WV	Influenza A H3	Influenza A H3	Residents: 13/155 (AR 8.4%) and Staff 5/116 (AR 4.3%)	Lab Confirmed	LTCF	Person-to-person
71	3/7/2011 13:00	3/8/2011 15:30	1590	26	Region 5 (PACT)	WV	Influenza A	Influenza A	Residents 6/119 (AR 5%)	Rapid test positive but not culture confirmed	LTCF	Person-to-person
72	3/9/2011 9:30	3/9/2011 10:15	45	1	Region 3 (EPHRT)	WV	Norovirus Gastroenteritis	Norovirus Genotype II	Residents: 8/91 (AR 9%) and Staff: 1/125 (AR 1%)	Lab Confirmed	LTCF	Person-to-person
73	3/10/2011 15:00	3/10/2011 15:10	10	0	Region 7 (SPHERE)	WV	Influenza A	influenza A	Residents: 6	Rapid test positive but not culture confirmed	LTCF	Person-to-person

Sequence Number	Date and Time Reported to LHD	Date and Time Reported to State	Elapsed Time in Minutes	Elapsed Time in Hours	Region	Jurisdiction	Clinical Diagnosis	Etiologic Agent	Final Case Count	Labs	Transmission	Modes of transmission or source of illness
74	3/14/2011 11:00	3/14/2011 14:10	190	3	Region 1 (ROC)	WV	Influenza A & B	Influenza A & B	Highest Absentee rate 20.6%	Rapid test positive but not culture confirmed	School	Person-to-person
75	3/15/2011 14:15	3/15/2011 14:45	30	0	Region 6 (Mid-Ohio Valley)	WV	Influenza A H3	Influenza A H3	Highest Absentee rate among students 17.5% and Staff 33%	Lab Confirmed	School	Person-to-person
76	3/18/2011 13:30	3/18/2011 14:10	40	1	Region 6 (Mid-Ohio Valley)	WV	Norovirus Gastroenteritis	Norovirus	Residents: 13/27 (AR=48.15%)	Lab Confirmed	LTCF	Person-to-person
77	Missing	3/17/2011 15:45	Missing	Missing	Region 6 (Mid-Ohio Valley)	WV	Acute Respiratory Illness	Undetermined	Residents 17/61 with LRI/Pneumonia (AR= 28%)	Lab test negative or noncontributory	LTCF	Person-to-person
78	3/18/2011 9:00	3/18/2011 9:15	15	0	Region 4 (Northern Panhandle)	WV	Varicella	Undetermined	Students: 11	Lab test not done	School	Person-to-person
79	Missing	Missing	Missing	Missing	Region 8 (Kanawha Charleston)	WV	Acute Gastroenteritis	Undetermined	Residents 30/69 (AR 43.5%) and Staff 18/93 (AR: 19.4%)	Lab test negative or noncontributory	LTCF	Person-to-person
80	Missing	Missing	Missing	Missing	Region 5 (PACT)	WV	Acute Conjunctivitis	Undetermined	Students: 6/40 (AR 15%) and Staff 2/9 (AR 22%)	Lab test not done	School	Person-to-person

Sequence Number	Date and Time Reported to LHD	Date and Time Reported to State	Elapsed Time in Minutes	Elapsed Time in Hours	Region	Jurisdiction	Clinical Diagnosis	Etiologic Agent	Final Case Count	Labs	Transmission	Modes of transmission or source of illness
81	3/22/2011 8:00	3/22/2011 10:25	145	2	Region 6 (Mid-Ohio Valley)	WV	Fifth Disease	Undetermined	Students: 23/164 (AR=14%)	Lab test not done	School	Person-to-person
82	3/18/2011 15:00	3/9/2011 15:20	####	217	Region 1 (ROC)	WV	Varicella	Undetermined	Students 3/254 (AR=1.2%)	Lab test not done	School	Person-to-person
83	3/28/2011 14:15	3/28/2011 15:20	65	1	Region 3 (EPHRT)	WV	Influenza A H3	Influenza A H3	Residents 2/55 (AR 3.6%)	Lab Confirmed	LTCF	Person-to-person
84	3/28/2011 16:47	Missing	Missing	Missing	Region 4 (Northern Panhandle)	WV	Varicella	Varicella Zoster Virus	Students 5/1187 (AR: 0.4%)	Lab Confirmed	School	Person-to-person
85	3/30/2011 10:00	3/30/2011 16:45	405	6	Region 4 (Northern Panhandle)	WV	Norovirus Gastroenteritis	Norovirus Genotype II	Residents 27/54 (AR 50%)	Lab Confirmed	LTCF	Person-to-person
86	3/31/2011 15:30	3/21/2011 16:15	####	240	Region 8 (Kanawha Charleston)	WV	Acute Respiratory Illness	Respiratory Syncytial Virus	Residents with URI 13/115 (AR=11%)	Lab Confirmed	LTCF	Person-to-person
87	4/1/2011 14:00	4/1/2011 14:43	43	0	Region 8 (Kanawha Charleston)	WV	Influenza A H3	Influenza A H3	Residents 15/56 (AR 27%) and Staff 19/35 (AR 52%)	Lab Confirmed	LTCF	Person-to-person

Sequence Number	Date and Time Reported to LHD	Date and Time Reported to State	Elapsed Time in Minutes	Elapsed Time in Hours	Region	Jurisdiction	Clinical Diagnosis	Etiologic Agent	Final Case Count	Labs	Transmission	Modes of transmission or source of illness
88	4/4/2011 11:00	4/4/2011 10:50	11	2	Region 6 (Mid-Ohio Valley)	WV	Varicella	Varicella Zoster Virus	Students 13/563 = 2.3%	Lab Confirmed	School	Person-to-person
89	4/8/2011 10:00	4/8/2011 10:30	30	0	Region 5 (PACT)	WV	Acute Gastroenteritis	Undetermined	Residents 15 and Staff 23	Lab test not done	LTCF	Person-to-person
90	4/15/2011 11:00	4/15/2011 11:15	15	0	Region 6 (Mid-Ohio Valley)	WV	Acute Gastroenteritis	Undetermined	5/62 residents (AR 8%)	Lab test not done	LTCF	Person-to-person
91	4/18/2011 15:00	4/18/2011 14:00	61	2	Region 8 (Kanawha Charleston)	WV	Multiple clinical presentations	Carbapenem-Resistant *Klebsiella pneumoniae* (CRKP)	Residents 3/116 (AR=3%)	Lab Confirmed	LTCF	Person-to-person
92	4/28/2011 9:30	4/28/2011 10:00	30	1	Region 8 (Kanawha Charleston)	WV	Scabies	Undetermined	Staff 2/8 (AR 25%)	Lab test not done	Outpatient Clinic	Person-to-person
93	4/29/2011 13:00	5/2/2011 9:52	4132	68	Region 5 (PACT)	WV	Norovirus Gastroenteritis	Norovirus Genotype II	Residents: 20/111 (AR=18%) and Staff: 21/150 (AR=14%)	Lab Confirmed	LTCF	Person-to-person
94	5/6/2011 9:00	5/6/2011 10:21	81	1	Region 6 (Mid-Ohio Valley)	WV	Streptococcal pharyngitis	Group A *Streptococcus*	Students 80/194 (AR 41%)	Rapid test positive but not culture confirmed	School	Person-to-person
95	5/6/2011 13:40	5/6/2011 13:30	11	0	Region 8 (Kanawha Charleston)	WV	Acute gastroenteritis	Undetermined	Total number of cases: 25	Lab test not done	LTCF	Person-to-person

Sequence Number	Date and Time Reported to LHD	Date and Time Reported to State	Elapsed Time in Minutes	Elapsed Time in Hours	Region	Jurisdiction	Clinical Diagnosis	Etiologic Agent	Final Case Count	Labs	Transmission	Modes of transmission or source of illness
96	5/11/2011 15:15	5/11/2011 16:11	56	1	Region 2 (BUNDLE)	WV	Fifth Disease	Undetermined	Students 10/435 (AR 2%)	Lab test not done	School	Person-to-person
97	5/12/2011 10:00	5/12/2011 10:30	30	0	Region 8 (Kanawha Charleston)	WV	Scabies	Undetermined	Residents: 2	Lab test not done	Group Home	Person-to-person
98	5/16/2011 15:15	5/16/2011 16:00	45	1	Region 8 (Kanawha Charleston)	WV	Acute Respiratory Illness	Undetermined	Residents: 5/95 (AR 5%)	Lab test negative or noncontributory	LTCF	Person-to-person
99	5/17/2011 9:45	5/17/2011 10:00	15	1	Region 4 (Northern Panhandle)	WV	Multiple clinical presentations	Carbapenem-Resistant *Klebsiella pneumoniae* (CRKP)	Patients: 3	Lab Confirmed	Hospital / LTCF	Person-to-person
100	5/17/2011 11:45	5/17/2011 0:42	664	12	Region 8 (Kanawha Charleston)	WV	Hand foot and mouth disease	Undetermined	Attendees: 3/18 (AR 17%)	Lab test not done	Daycare	Person-to-person
101	5/17/2011 12:15	5/17/2011 12:45	30	0	Region 8 (Kanawha Charleston)	WV	Acute Respiratory Illness	Undetermined	Residents: 4/93 (AR 4%) Staff : 1	Lab test not done	LTCF	Person-to-person
102	5/19/2011 10:00	5/19/2011 10:30	30	0	Region 6 (Mid-Ohio Valley)	WV	Varicella	Varicella Zoster Virus	Students 7/341 (AR: 2.1%)	Lab Confirmed	School	Person-to-person
103	5/24/2011 8:55	5/24/2011 9:00	5	1	Region 1 (ROC)	WV	Acute Respiratory Illness	Undetermined	17 residents	Lab test negative or noncontributory	LTCF	Person-to-person

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104	5/31/2011 9:00	5/31/2011 8:55	6	2	Region 7 (SPHERE)	Multi-state	Salmonellosis	Salmonella Altona	4 cases in WV and 68 cases nationally	Lab Confirmed	Community	Person-to-person
105	6/2/2011 9:00	6/2/2011 8:55	6	2	Region 6 (Mid-Ohio Valley)	WV	Varicella	Varicella Zoster Virus	Students: 4/367 (AR: 1.1%)	Lab Confirmed	School	Person-to-person
106	6/6/2011 13:00	6/6/2011 16:34	214	3	Region 1 (ROC)	WV	Varicella	Undetermined	Students 14/150 (AR: 9.3%)	Lab test not done	School	Person-to-person
107	6/9/2011 9:00	6/8/2011 9:00	1441	25	Region 1 (ROC)	Multi-state	Salmonellosis	Salmonella Johanesburg	1 WV case	Lab Confirmed	Community	Point source
108	6/10/2011 11:40	6/10/2011 11:50	10	0	Region 1 (ROC)	WV	Norovirus Gastroenteritis	Norovirus	Residents 22/163 (AR 14%) and Staff 18/95 (AR: 19%)	Lab Confirmed	LTCF	Person-to-person
109	6/15/2011 9:00	6/14/2011 9:35	1406	25	Region 3 (EPHRT)	WV	Multiple clinical presentations	Carbapenem-Resistant Klebsiella pneumoniae (CRKP)	Residents: 1/103, (AR=1%)	Lab Confirmed	LTCF	Person-to-person
110	6/22/2011 16:30	6/22/2011 16:45	15	0	Region 8 (Kanawha Charleston)	WV	Multiple clinical presentations	Carbapenem-Resistant *Klebsiella pneumoniae* (CRKP)	Residents 2/86 (AR= 2%)	Lab Confirmed	LTCF	Person-to-person

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111	7/7/2011 15:35	7/7/2011 15:15	21	0	Region 1 (ROC)	WV	Pneumonia	Undetermined	Residents 7/92 (AR 7%)	Lab test negative or noncontributory	LTCF	Person-to-person
112	7/13/2011 12:36	7/13/2011 12:55	19	0	Region 8 (Kanawha Charleston)	WV	Acute Gastroenteritis	Undetermined	Residents 2/54 (AR: 4%) and Staff 2/40 (AR: 5%) staff	Lab test not done	LTCF	Person-to-person
113	7/27/2011 13:00	7/27/2011 12:40	21	2	Region 3 (EPHRT)	WV	Multiple clinical presentations	Carbapenem-Resistant Klebsiella pneumoniae (CRKP)	8 Cases	Lab Confirmed	LTCF	Person-to-person
114	8/3/2011 9:33	7/26/2011 11:30	####	191	Region 5 (PACT)	Multi-state	Salmonellosis	Salmonella enteritidis	17 confirmed cases (including 1 from WV) and 24 probable cases (including 1 from WV)	Lab Confirmed	Community	Point source
116	8/8/2011 12:30	8/8/2011 17:30	300	5	Region 8 (Kanawha Charleston)	WV	Acute Gastroenteritis	Undetermined	Attendees: 7/28 (AR=25%)	Lab test negative or noncontributory	Sport event attendees	Likely Point Source
117	8/6/2011 17:00	8/8/2011 15:32	2792	46	Region 7 (SPHERE)	WV	CDI (C. Diff Infection)	Clostridium difficile(C. Diff)	16 cases Community associated and 13 cases of Healthcare facilities associated	Lab Confirmed	Hospital/LTCFs/Community	Person-to-person

118	8/11/2011 10:30	8/11/2011 11:19	49	1	Region 8 (Kanawha Charleston)	WV	Skin Infection	Methicillin-Resistant *Staphylococcus aureus* (MRSA)	Attendees 2/16 (AR 12.5%)	Lab Confirmed	Daycare	Person to person
119	8/10/2011 9:30	8/11/2011 9:30	1440	24	Region 3 (EPHRT)	Multi-state	STEC Gastroenteritis	Shiga toxin–producing *Escherichia coli* (STEC 0157)	6 WV residents	Lab Confirmed	Community	Point Source
121	8/22/2011 9:15	8/22/2011 9:30	15	0	Region 2 (BUNDLE)	WV	Varicella	Undetermined	Students 6/288 (AR:2%)	Lab test not done	School	Person-to-person
122	8/25/2011 10:00	8/24/2011 16:00	1081	19	Region 4 (Northern Panhandle)	Multi-state	Pneumonia	Legionellosis	Cases: 9 confirmed cases	Lab Confirmed	Community	Likely Point source
123	8/26/2011 12:15	8/26/2011 12:30	15	0	Region 8 (Kanawha Charleston)	WV	Acute Gastroenteritis	Undetermined	Students: 42/460 (AR=9%) and Staff 9	Lab test negative or noncontributory	School	Person-to-person
124	9/4/2011 14:35	9/4/2011 15:30	55	1	Region 3 (EPHRT)	WV	Febrile headache	Undetermined	Athletes: 4/25 (AR 16%)	Lab test negative or noncontributory	Sports team	Person-to-person
125	9/9/2011 16:00	9/9/2011 16:50	50	0	Region 6 (Mid-Ohio Valley)	WV	Pneumonia / Lower Respiratory Illness	Undetermined	Residents 21/51(AR= 41%) and Staff 13/75 (AR=17%)	Lab test negative or noncontributory	LTCF	Person-to-person
127	9/19/2011 14:00	9/19/2011 14:40	40	0	Region 7 (SPHERE)	WV	Skin infection	Methicillin-Sensitive *Staphylococcus aureus* (MSSA)	Athletes: 7 (2 confirmed and 5 probable)	Lab Confirmed	Sports team	Person-to-person
128	9/21/2011 8:22	9/21/2011 8:30	8	0	Region 1 (ROC)	WV	Acute Conjunctivitis	Undetermined	Residents: 3/75 (AR= 4%)	Lab test not done	LTCF	Person-to-person
129	9/21/2011 16:00	9/23/2011 23:30	3330	55	Region 5 (PACT)	WV	Campylobacter Gastroenteritis	Campylobacter	Campers: 6/9 (AR=67%)	Lab Confirmed	School Camping Trip	Likely Point source

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130	9/28/2011 11:15	9/28/2011 11:45	30	0	Region 8 (Kanawha Charleston)	WV	Scabies	Undetermined	5 cases	Lab test not done	School	Person-to-person
131	10/5/2011 8:20	10/5/2011 9:21	61	1	Region 1 (ROC)	WV	Acute Gastroenteritis	Undetermined	Staff: 5/167 (AR=3%)	Lab test not done	LTCF	Person-to-person
132	10/5/2011 11:00	10/5/2011 12:33	93	1	Region 8 (Kanawha Charleston)	WV	Pneumonia / Lower Respiratory Illness	Undetermined	Residents: 11/90 (AR=12%)	Lab test negative or noncontributory	LTCF	Person-to-person
134	10/11/2011 8:15	10/11/2011 8:45	30	0	Region 1 (ROC)	WV	Norovirus Gastroenteritis	Norovirus	Residents: 36/56 (AR= 64%) and Staff: 28/85 (AR=33%)	Lab Confirmed	LTCF	Person-to-person
135	10/13/2011 10:24	10/13/2011 10:29	5	0	Region 1 (ROC)	WV	Acute Respiratory Illness	Rhinovirus	Residents: 10/52 with URI & LRI (AR=19%) and Staff: 6 with URI	Lab Confirmed	LTCF	Person-to-person
136	10/14/2011 9:30	10/14/2011 10:00	30	1	Region 1 (ROC)	WV	Aseptic Meningitis	Enterovirus	Students: 5	Lab Confirmed	School	Person-to-person
137	10/19/2011 19:00	10/19/2011 20:00	60	1	Region 4 (Northern Panhandle)	WV	Blood Stream Infection	Tsukamorella	Patients: 14	Lab Confirmed	Outpatient Clinic	Undetermined
138	10/25/2011 14:00	10/25/2011 14:32	32	0	Region 6 (Mid-Ohio Valley)	WV	Scabies	Undetermined	Residents 1/8 (AR=12.5%) and Staff 3/15 (AR=20%)	Lab test not done	Group Home	Person-to-person

Sequence Number	Date and Time Reported to LHD	Date and Time Reported to State	Elapsed Time in Minutes	Elapsed Time in Hours	Region	Jurisdiction	Clinical Diagnosis	Etiologic Agent	Final Case Count	Labs	Transmission	Modes of transmission or source of illness
139	10/26/2011 16:00	10/27/2011 16:32	1472	24	Region 8 (Kanawha Charleston)	WV	Acute Respiratory Illness	Undetermined	6 Individuals with URI	Lab test negative or noncontributory	Community	Person-to-person
141	10/31/2011 8:30	10/31/2011 9:15	45	1	Region 6 (Mid-Ohio Valley)	WV	Hand foot and Mouth Disease	Undetermined	Attendees: 6/75 (AR=8%)	Lab test negative or noncontributory	Daycare	Person-to-person
142	11/1/2011 9:50	11/1/2011 9:58	8	0	Region 7 (SPHERE)	WV	Scabies	Undetermined	Residents: 11, staff, 6 and other contacts: 3	Lab test not done	LTCF	Person-to-person
143	11/2/2011 13:45	11/2/2011 14:40	55	1	Region 1 (ROC)	WV	Norovirus Gastroenteritis	Norovirus Genotype II	Highest Absentee=109	Lab Confirmed	School	Person-to-person
144	11/7/2011 8:00	11/7/2011 9:20	80	1	Region 1 (ROC)	WV	Acute Respiratory Illness	Undetermined	Residents: 14/118 with URI (AR =12%)	Lab test negative or noncontributory	LTCF	Person-to-person
145	10/28/2011 14:00	10/28/2011 14:00	0	0	Region 6 (Mid-Ohio Valley)	WV	Pneumonia	Mycoplasma	Missing	Lab Confirmed	School	Person-to-person
146	11/8/2011 9:50	11/8/2011 10:15	25	1	Region 2 (BUNDLE)	WV	Multiple clinical presentations	Carbapenem-Resistant Enterobacteriaceae (CRE)	Residents: 1/110 (AR= 0.9 %)	Lab Confirmed	LTCF	Person-to-person
147	11/9/2011 15:15	11/9/2011 15:40	25	0	Region 1 (ROC)	WV	Aseptic Meningitis	Undetermined	Attendees: 2/16 (AR= 13%)	Lab test negative or noncontributory	Daycare	Person-to-person

Sequence Number	Date and Time Reported to LHD	Date and Time Reported to State	Elapsed Time in Minutes	Elapsed Time in Hours	Region	Jurisdiction	Clinical Diagnosis	Etiologic Agent	Final Case Count	Labs	Transmission	Modes of transmission or source of illness
149	11/10/2011 14:40	11/10/2011 14:45	5	0	Region 7 (SPHERE)	WV	Varicella	Varicella Zoster Virus	Students: 7/819 (AR=0.9%)	Lab Confirmed	School	Person-to-person
150	11/10/2011 13:30	11/10/2011 14:00	30	1	Region 6 (Mid-Ohio Valley)	WV	Acute Respiratory Illness	Undetermined	Residents: 23/68 with URI (AR= 34%) and Staff: 13/75 with URI (AR 17%)	Lab test not done	Nursing Home	Person-to-person
151	11/10/2011 14:10	11/10/2011 14:35	25	0	Region 1 (ROC)	WV	Norovirus Gastroenteritis	Norovirus Genotype II	Residents: 13/109 (AR=12%) and Staff: 16/120 (AR=13%)	Lab Confirmed	Nursing Home	Person-to-person
152	11/1/2011 13:30	11/1/2011 14:30	60	1	Region 3 (EPHRT)	WV	Multiple clinical presentations	Carbapenem-Resistant *Klebsiella pneumoniae* (CRKP)	Residents 2/71 (AR= 2.8%)	Lab Confirmed	Nursing Home	Person-to-person
153	11/16/2011 16:15	11/16/2011 16:30	15	0	Region 1 (ROC)	WV	Norovirus Gastroenteritis	Norovirus Genotype II	Residents 25/89 (AR =28%), and Staff: 15.	Lab Confirmed	Nursing Home	Person-to-person
155	12/5/2011 9:00	12/5/2011 10:00	60	1	Region 5 (PACT)	WV	Varicella	Undetermined	Students 5/118 (AR=4.2%)	Lab test not done	School	Person-to-person
156	12/12/2011 10:30	12/12/2011 10:45	15	0	Region 2 (BUNDLE)	WV	Norovirus Gastroenteritis	Norovirus Genotype II	Residents: 40/120 (AR 33%)	Lab Confirmed	Nursing home	Person-to-person

Sequence Number	Date and Time Reported to LHD	Date and Time Reported to State	Elapsed Time in Minutes	Elapsed Time in Hours	Region	Jurisdiction	Clinical Diagnosis	Etiologic Agent	Final Case Count	Labs	Transmission	Modes of transmission or source of illness
157	12/16/2011 13:40	12/16/2011 14:45	65	1	Region 8 (Kanawha Charleston)	WV	Acute Gastroenteritis	Undetermined	Attendees: 6/65 (AR= 9%)	Lab test not done	Workplace gathering	Likely Point source
158	12/19/2011 11:20	12/19/2011 11:35	15	0	Region 8 (Kanawha Charleston)	WV	Norovirus Gastroenteritis	Norovirus Genotype II	Residents: 59/117 (AR 50%) and Staff: 41/136 (AR 30%)	Lab Confirmed	Nursing home	Person-to-person
159	12/19/2011 15:00	12/20/2011 11:00	1200	20	Region 1 (ROC)	WV	Salmonellosis	Salmonella schwarzengrund	5 cases	Lab Confirmed	Community	Undetermined
160	12/22/2011 15:40	12/22/2011 16:10	30	1	Region 8 (Kanawha Charleston)	WV	Scabies	Undetermined	Staff 13	Lab test not done	Hospital	Person-to-person
162	12/23/2011 14:00	12/23/2011 14:30	30	0	Region 4 (Northern Panhandle)	WV	Norovirus Gastroenteritis	Norovirus Genotype II	Residents: 41/120 (AR=34%) and Staff: 55	Lab Confirmed	LTCF	Person-to-person
163	12/27/2011 9:15	12/27/2011 8:55	21	2	Region 8 (Kanawha Charleston)	WV	Acute Gastroenteritis	Undetermined	Residents: 28/52 (AR= 54%) and Staff: 8	Lab test not done	LTCF	Person-to-person
164	12/28/2011 9:44	12/28/2011 10:00	16	1	Region 6 (Mid-Ohio Valley)	WV	CDI (C. Diff Infection)	*Clostridium difficile (*C. Diff)	Residents: 6/97 (AR=6.2%) Healthcare Facilities Onset and Associated	Lab Confirmed	LTCF	Person-to-person
165	12/28/2011 9:30	12/28/2011 10:44	74	1	Region 2 (BUNDLE)	WV	Norovirus Gastroenteritis	Norovirus Genotype II	Residents 62/124 (AR= 50%) Employees 35.	Lab Confirmed	LTCF	Person-to-person

Sequence Number	Date and Time Reported to LHD	Date and Time Reported to State	Elapsed Time in Minutes	Elapsed Time in Hours	Region	Jurisdiction	Clinical Diagnosis	Etiologic Agent	Final Case Count	Labs	Transmission	Modes of transmission or source of illness
166	12/28/2011 15:35	12/28/2011 15:35	0	0	Region 3 (EPHRT)	WV	Pertussis	Bortedela Pertussis	Confirmed cases 13 and Probable cases: 6	Lab Confirmed	LTCF	Person-to-person
167	12/29/2011 9:00	12/29/2011 9:52	52	0	Region 4 (Northern Panhandle)	WV	Norovirus Gastroenteritis	Norovirus Genotype II	Residents: 78/172 (AR= 45%) Staff: 68/226 (AR=30%)	Lab Confirmed	LTCF	Person-to-person
169	12/30/2011 11:45	12/30/2011 12:00	15	1	Region 2 (BUNDLE)	WV	Acute Gastroenteritis	Undetermined	Residents: 18/160 (AR=11.3%) and Staff 17/200(AR=8.5%)	Lab test not done	LTCF	Person-to-person