Outbreaks in West Virginia

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2025 Infectious Disease and Immunization Summit

West Virginia Department of HEALTH

Objectives

- Give the importance of recognizing, reporting and responding to outbreaks
- Identify the jurisdictional roles of outbreak management
- Summarize Infectious disease outbreak trends in West Virginia
- Show where to find outbreak investigation resources and reference materials

Definitions

Outbreak: An increase in disease cases over what is expected for a given time, location and target population

Cluster: Cases grouped in place and time without considering what is expected in a given time frame

How Do Outbreaks Get Identified?

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Why report and investigate outbreaks?

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Reportable Diseases Rule 64CSR7--outbreaks and clusters of any disease or illness in any setting are immediately reportable to the Local Health Department (LHD)

West Virginia Reportable Infectious Diseases
Facilities and Providers (W. Va. Code 16-3-1; 64CSR7)

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

Category I Report suspect or confirmed cases immediately to the Local Health Department	Category II Report within 24 hours to the Local Health Department	Category III Report within 72 hours to the Local Health Department	Category IV Report within 1 week to the Local Health Department	Category V Report within 1 week to the State Health Department
• Anthrax • Bioterrorist event • Botulism • Foodborne outbreak • Intentional exposure to an infectious agent or biological toxin • Middle East respiratory syndrome (MERS) • Novel influenza infection, animal or human • Orthopox infection, including smallpox and monkeypox • Outbreak or cluster of any illness or condition[1] • Plague • Rubella • Rubella, congenital syndrome • Rubeola (Measles) • SARS coronavirus infection • Smallpox • Tularemia • Viral hemorrhagic fevers [2] • Waterborne outbreak	• Animal bites • Brucellosis • Cholera • Dengue fever • Diphtheria • *Hemophilus influenzae*, invasive disease[3] • Hemolytic Uremic Syndrome, postdiarrheal • Hepatitis A, acute[4] • Hepatitis B, acute, chronic or perinatal[4] • Hepatitis D[4] • Meningococcal disease, invasive • Mumps, acute infection • Pertussis (whooping cough) • Poliomyelitis • Q-fever (*Coxiella burnetii*) • Rabies; human or animal • Shiga toxin-producing *Escherichia coli* (STEC)[5] • *Staphylococcus aureus* with glycopeptide- intermediate (GISA/VISA) or glycopeptide- resistant (GRSA/VRSA) susceptibilities[3] • Tuberculosis; all forms[3] • Typhoid fever (*Salmonella typhi*) • Yellow fever • Zika virus disease • Any other unusual condition or emerging infectious disease	• Campylobacteriosis • Covid-19 (SARS CoV-2)[6] • Cryptosporidiosis • Cyclospora • Giardiasis • Listeriosis • Salmonellosis (except Typhoid fever)[3] • Shigellosis[3] • Trichinosis • Vibriosis	• Acute flaccid myelitis (AFM) • Anaplasmosis • Arboviral infection • Babesiosis • Chickenpox (numerical totals only) • Ehrlichiosis • Hantavirus pulmonary syndrome • Influenza-related death in an individual less than 18 years of age • Legionellosis • Leptospirosis • Lyme disease • Malaria • Psittacosis • Respiratory syncytial virus (RSV)-related death in an individual ≤ 5 years of age • Spotted fever rickettsiosis • Streptococcal toxic shock syndrome • *Streptococcus pneumoniae*, invasive[3] • Tetanus • Toxic Shock Syndrome • Tuberculosis, latent infection	• AIDS • Chancroid • Chlamydia • Creutzfeldt-Jakob disease • Gonococcal conjunctivitis of the newborn (within 24 hours) • Gonococcal disease, drug resistant (within 24 hours) • Gonococcal disease, all other • Hepatitis C, acute[4] • Hepatitis C, perinatal • HIV • Pelvic inflammatory disease • Syphilis (late) • Syphilis, primary, secondary or early latent (less than 1 year duration) or congenital (within 24 hours)

[1] In any setting
[2] Including filoviruses such as Ebola and Marburg and arenaviruses such as Lassa fever
[3] Including results of susceptibility testing
[4] Including results of hepatitis A and B serologies, transaminase levels and bilirubin
[5] Including but not limited to *E coli* O157:H7
[6] Case reports only including those with positive and negative NAAT test results

Report name, address, telephone number, date of birth, sex, race, ethnicity and the physician's name, office address, office phone and fax numbers, using the appropriate disease reporting form in the West Virginia Reportable Disease Protocol Manual: www.oeps.wv.gov

West Virginia Department of Health & Human Resources, Bureau for Public Health
350 Capitol Street, Room 125
Charleston, WV 25301
Phone: 304.558.5358, ext 2 In WV: 800.423.1271, ext 2 Answering service: 304.347.0843 Fax: 304.558.8736

May 2022

Outbreak Investigation Prioritization

West Virginia Department of HEALTH

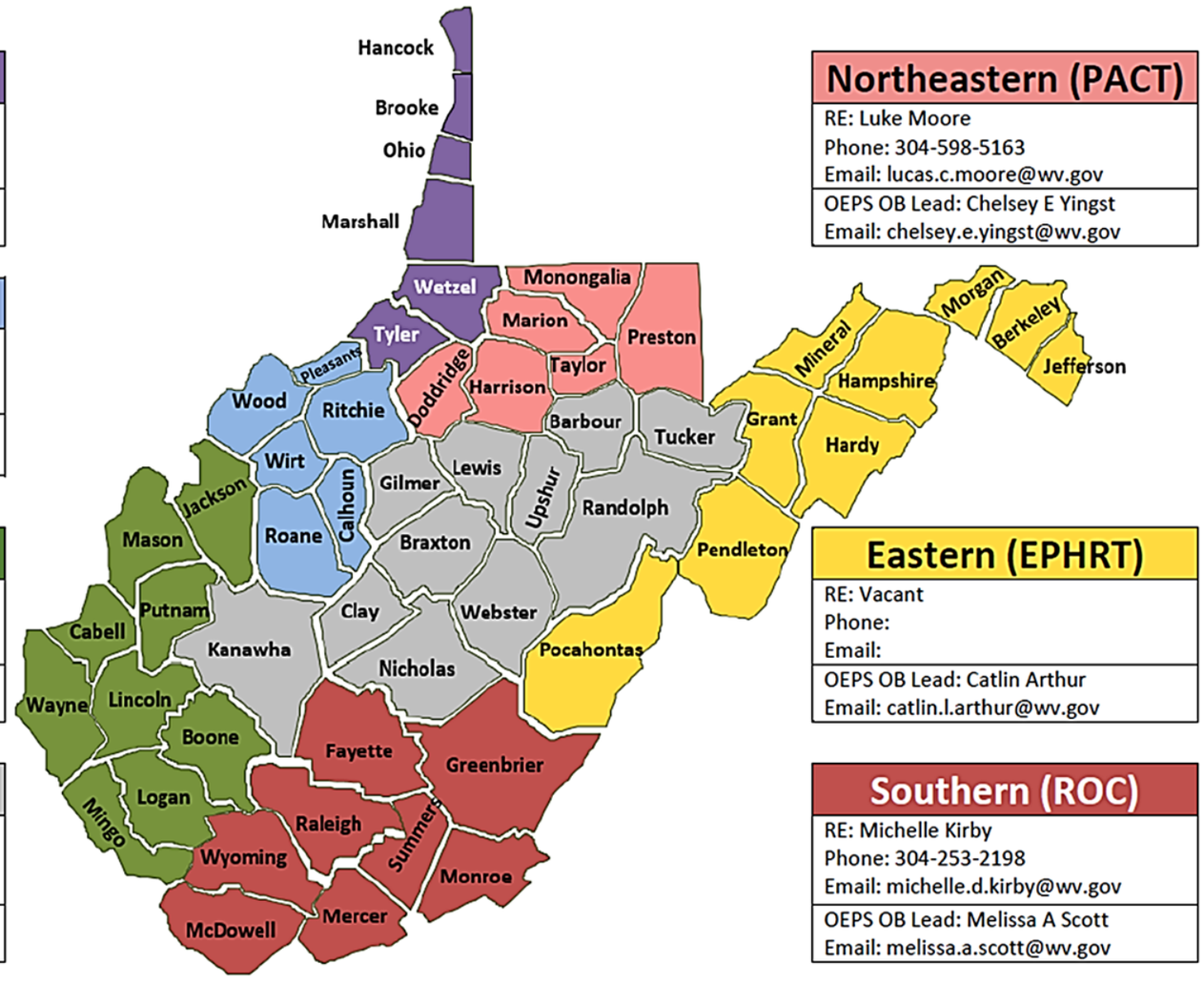
- Severity of Illness
- Disease Communicability
- Ongoing health threat
- Unknown pathogen/agent
- Public concern
- Available resources
- Political considerations

Systematic and Multistep Approach

1. Establish the existence of an outbreak
2. Verify the disease diagnosis
3. Plan the outbreak investigation response team
4. Develop a case definition
5. Systematically Identify and count cases
6. Perform descriptive epidemiology in terms of time, place and person
7. Develop and test the hypothesis
8. Implement and evaluate control and prevention measures
9. Evaluate response effectiveness and maintain surveillance
10. Communicate Findings

Collaborative Response Effort

Surveillance Regions and Current Coverage



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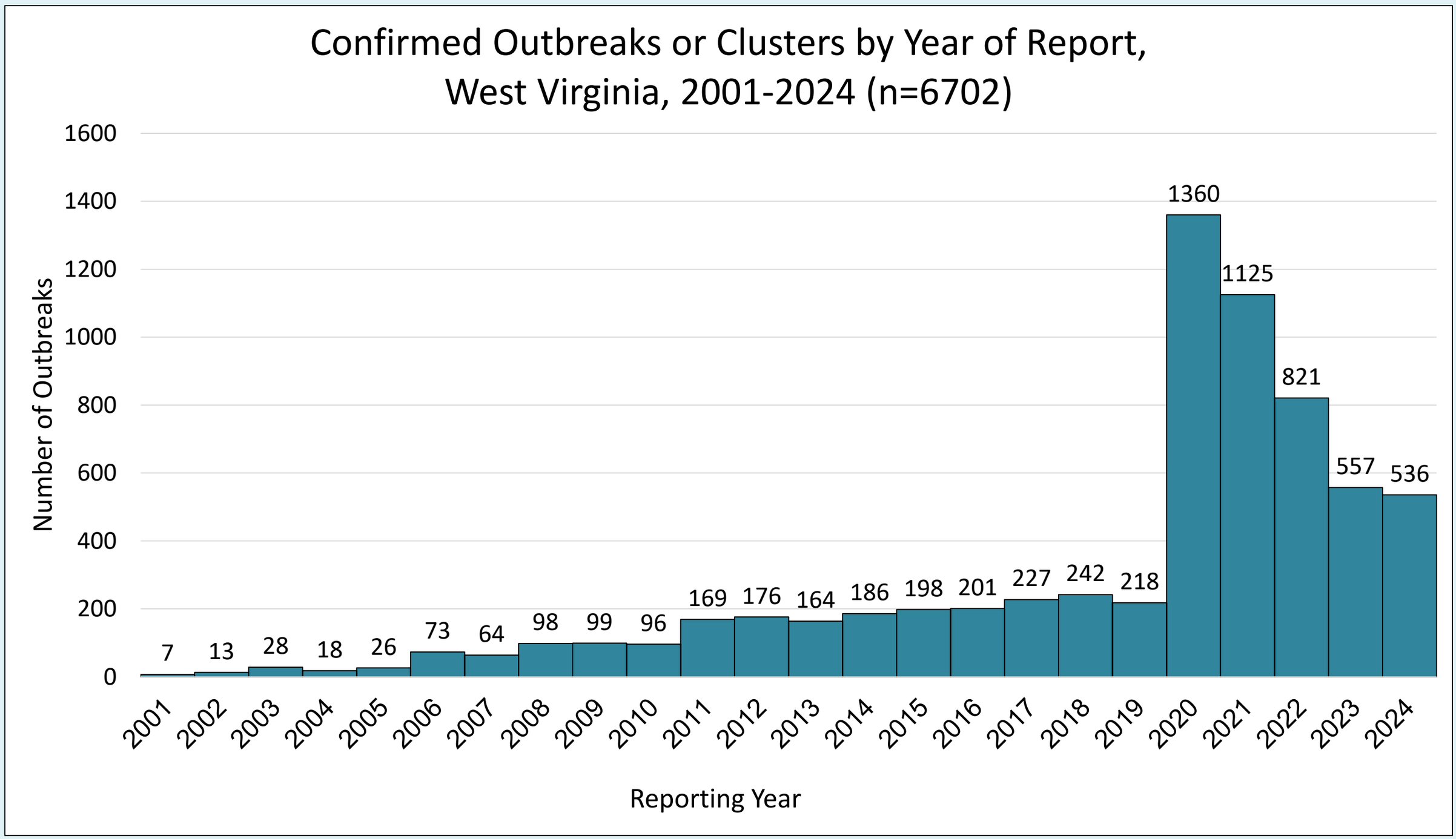
Multi-Jurisdictional Coordination:

- LHD
- Regional Epi
- State Health Department
- Federal Agencies
- Location, size and complexity determine jurisdictional roles and responsibilities

Outbreaks by Year

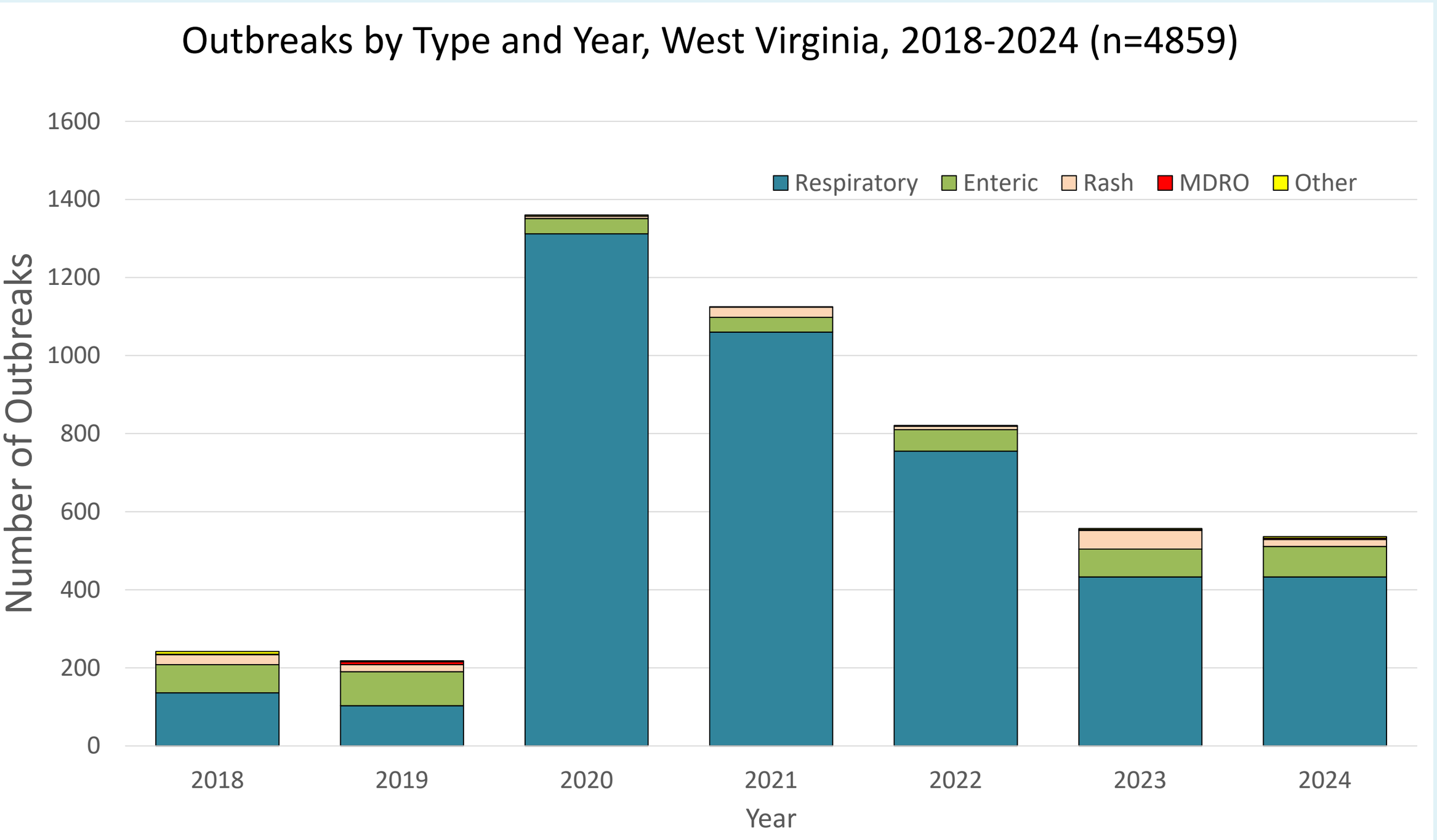


Most Common Types of Outbreaks

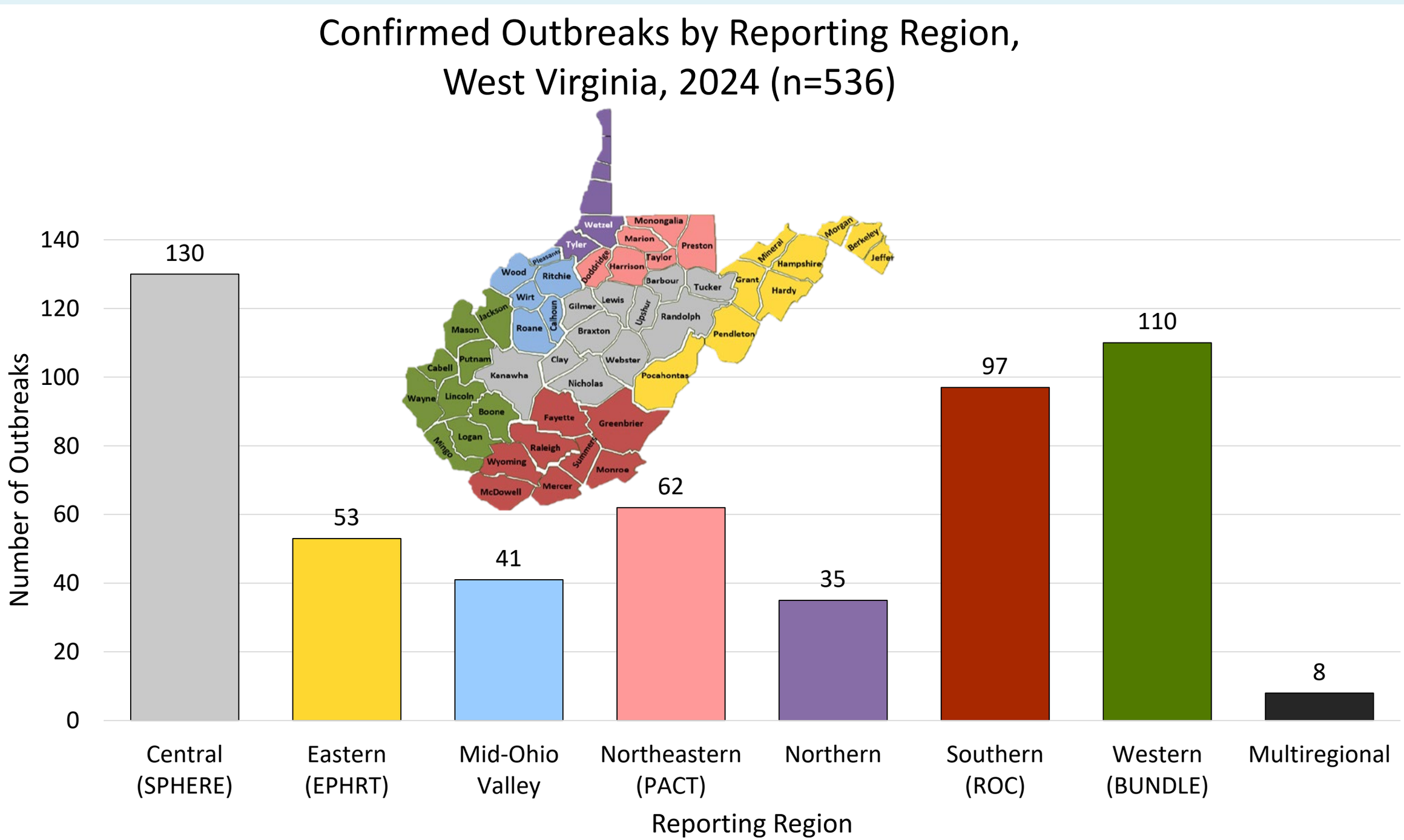
Outbreaks are categorized by type into the following categories:

- **Respiratory**
  - COVID-19
  - Influenza
  - RSV
  - Pneumonia
- **Enteric**
  - AGI (unknown etiology)
  - Norovirus
- **Rash**
  - Scabies
  - Varicella
  - Hand, food & mouth disease
- **Multidrug Resistant Organism**
  - *Candida auris*
  - *Clostridium difficile*
- **Other**
  - Conjunctivitis
  - Hepatitis

Outbreaks by Type and Year



Outbreaks by Region



Laboratory Testing 2024

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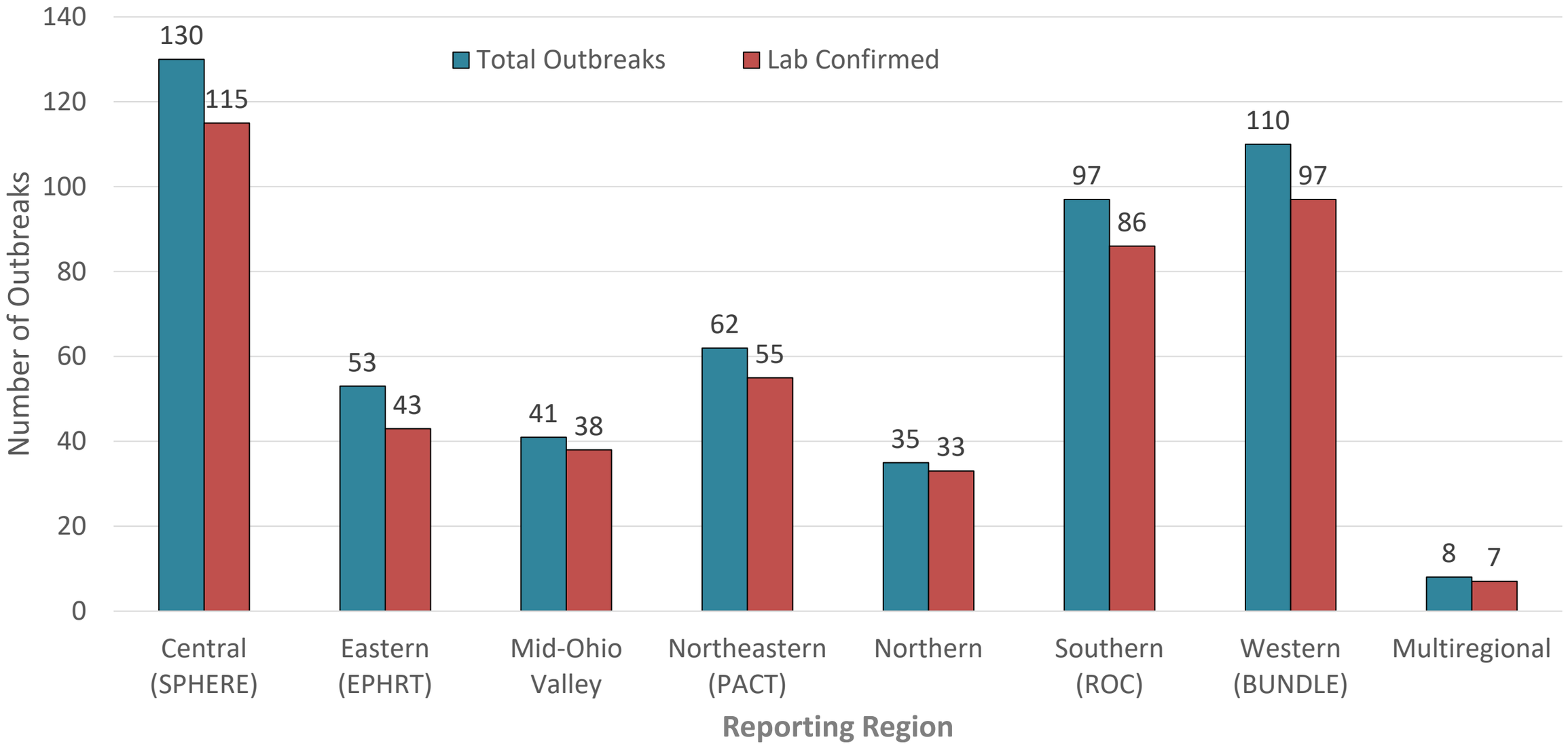
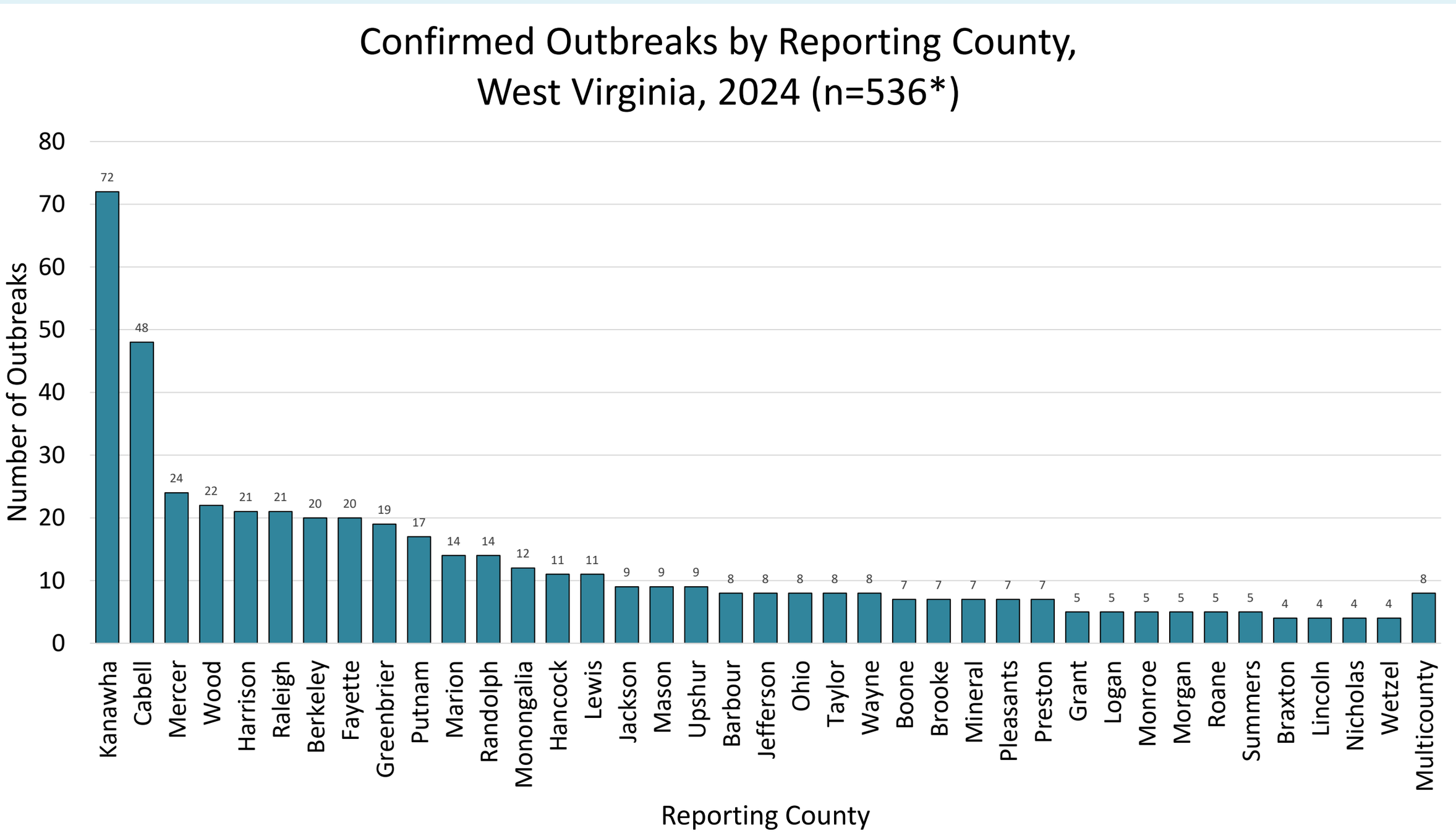
Confirmed Outbreaks and Laboratory Testing by Region, West Virginia, 2024 (n=536)



Outbreaks by County 2024



*15 Counties reported less than 4 outbreaks accounting for 34 outbreaks.

Outbreak Settings & Populations

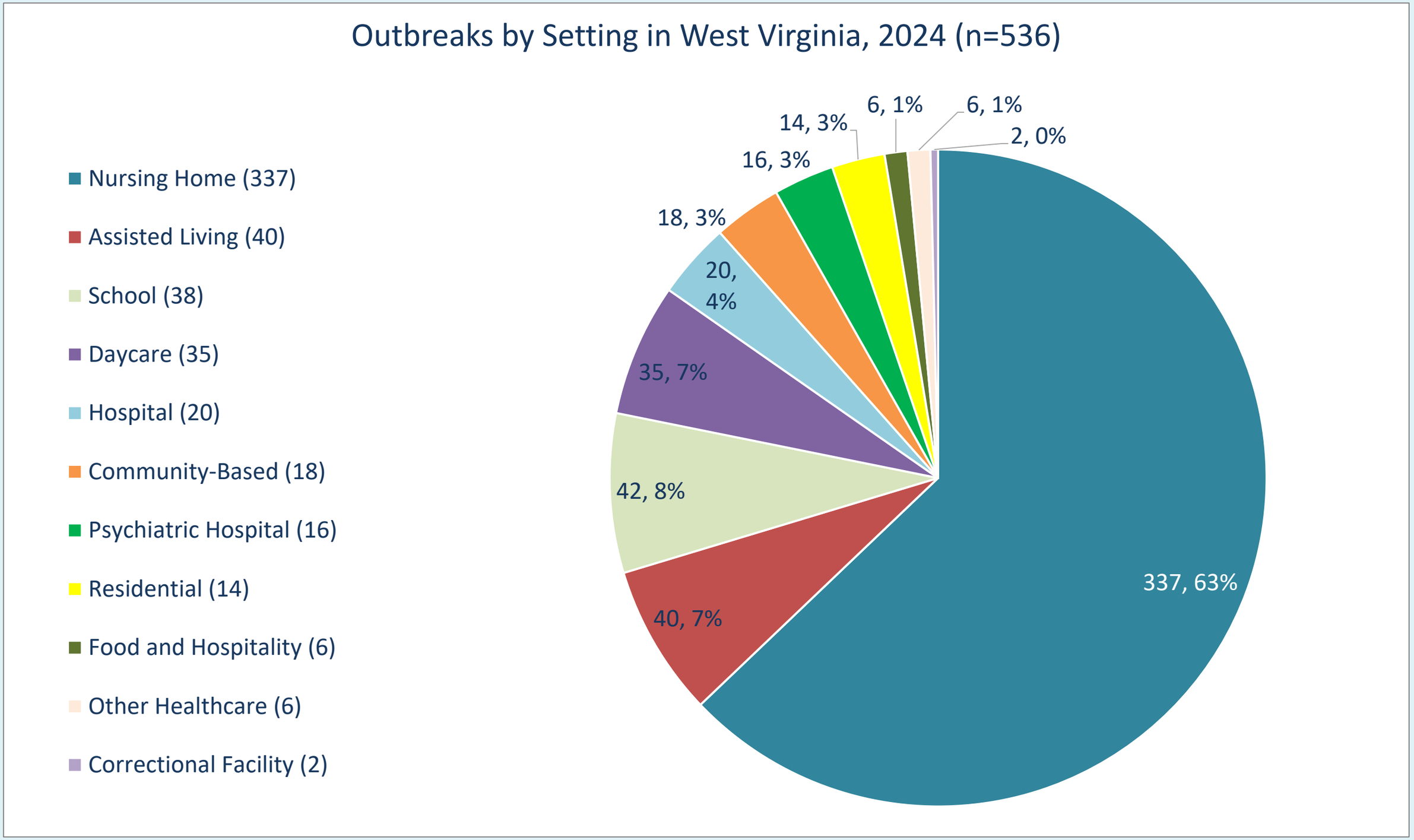
Common congregate settings outbreaks occur in:

- Healthcare facilities - nursing homes, hospitals, etc.
- Schools
- Childcare facilities
- Group homes - non-healthcare related congregate settings
- Correctional facilities
- Community - large gatherings/events, sports teams, etc.

Populations:

- Healthy vs. immunocompromised
- Pediatric, elderly vs. healthy adult
- Exposed vs. unexposed

Outbreaks by Setting 2024



Toolkits and other resources

OEPS website has links to:

- Outbreak protocols
- Disease-specific and setting-specific outbreak toolkits
- Data reports
- Other outbreak related resources

oeps.wv.gov/outbreaks/pages/default.aspx

Contact Information

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Outbreak Scenarios Activity

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Scenario 1 – Acute Respiratory Illness in a Long-term Care Facility (LTCF)

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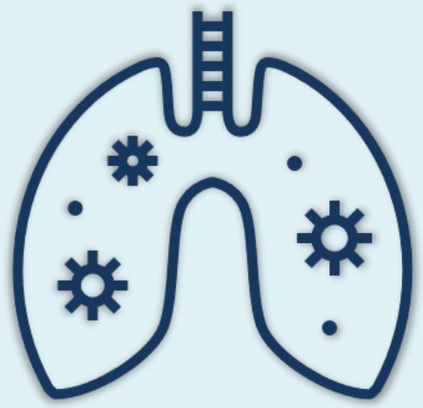
Mountain Meadows reports four residents in Unit B developed fever, cough and sore throat between June 3 and June 5. One tested positive for influenza A.



Questions:

1. Does this meet the outbreak definition for an Acute Respiratory Illness (ARI) outbreak at a LTCF? Why or why not?
2. What infection control measures would you recommend they implement today? Antiviral strategies?

Scenario 1 Review

1. **Does this meet the outbreak definition? Why or why not?**
   - Yes, this qualifies as an outbreak under Influenzas-like Illness (ILI) definition. One laboratory confirmed case identified with other cases of ARI on a unit.

2. **What infection control measures would you recommend they implement today? Antiviral strategies?**
   - Private rooms or cohorting
   - Respiratory hygiene, cough etiquette and Personal Protective Equipment (PPE)
   - Antivirals and chemoprophylaxis

***Additional considerations for influenza outbreaks**

1. Administer influenza antiviral treatment and chemoprophylaxis to residents and healthcare personnel according to current recommendations. Refer to references above and CDC's Influenza Antiviral Medications: Summary for Clinicians.
2. Do not wait for testing results to initiate antiviral treatment for all residents who have confirmed or suspected influenza.
3. Administer antiviral chemoprophylaxis for all non-ill residents living on the same unit(s), regardless of their influenza vaccination status.
4. Consideration may be given for extending antiviral chemoprophylaxis to residents on other unaffected units in the long-term care facility based upon factors (e.g., unavoidable mixing of residents or healthcare personnel from affected units and unaffected units).
5. Antiviral chemoprophylaxis is meant for residents who are not exhibiting ILI but who may have been exposed to an ill person with influenza to prevent transmission.
6. Consider antiviral chemoprophylaxis for unvaccinated healthcare personnel who provide care to those at high risk of influenza complications.
7. Antiviral chemoprophylaxis is recommended for at least two weeks and continuing for at least 7-10 days after identification of the last confirmed case.

Scenario 2 – Acute Gastroenteritis Illness in a LTCF

Shady Pines Nursing Home has had two staff members and three residents with symptoms of vomiting and diarrhea in multiple episodes within 24 hours of each other.
One staff member works in dietary and the other works as a nursing assistant.

Questions:

1. Does this scenario meet the outbreak definition for Acute Gastroenteritis Illness (AGI) in a LTCF? What information supports your decision?
2. What are your top three immediate actions for infection control? Consider source exposure as well.
3. What additional information or tools would you use from the AGI outbreak toolkit in healthcare facilities?

Scenario 2 Review

1. **Does this scenario meet the outbreak definition for AGI in a LTCF?**
   - Yes, because it meets an onset of three to five individual cases within 24 hours.

2. **What are your top three immediate actions for infection control?**

Note: One staff member works in dietary = critical exposure risk. Even though the outbreak appears to be person-to-person, any contact with food introduces the potential for foodborne amplification.

   - Contact precautions and exclusion for 48 hours (residents and staff)
   - Environmental and food area cleaning
   - Reinforce hand hygiene and staff education

3. **What additional information or tools would you use from the AGI outbreak toolkit in healthcare facilities?**
   - AGI line list of ill persons
   - Specimen collection guidance (collect stool samples from three-five individuals)
   - Environmental cleaning recommendations
   - Hand hygiene audit tool

Scenario 3 – Rash in a Daycare

Two children in the three-year-old classroom at a daycare developed low-grade fever and blisters on their palms and mouths. One child has a physician-confirmed diagnosis of Hand, Foot, and Mouth Disease (HFMD). The symptoms occurred four days apart. No other cases have been reported. The center is concerned about spread and asks the Local Health Department (LHD) what they should do next.

Questions:

1. Does this meet the definition of an outbreak?
2. What actions would you recommend to control further spread?
3. What guidance would you offer regarding exclusion criteria?

Scenario 3 Review

1. **Does this meet the definition of an outbreak?**
   - This does not meet the outbreak threshold of three or more HFMD cases within one week at the facility.

Define the outbreak:

Outbreak Definition: Three or more cases of HFMD within one week at the same facility

Case Definition: *Confirmed case:* Tiny blisters in two or more body sites (palms, soles, mouth, or buttocks) and laboratory confirmed enterovirus by PCR or culture; or epidemiological link to a confirmed case

Probable case: Tiny blisters in two or more body sites (palms, soles, mouth, or buttocks) and physician diagnosed HFMD

Suspect case: Tiny blisters in two or more body sites (palms, soles, mouth, or buttocks) and pending laboratory or physician confirmation

2. **What actions would you recommend to control further spread?**
   - Cover coughs/sneezes with tissue; wash hands after
   - Clean/disinfect frequently touched surfaces and toys with Environmental Protection Agency (EPA) registered products
   - Avoid sharing utensils/cups; limit contact with saliva and respiratory secretions

3. **What guidance would you provide about exclusion?**
   - Do not exclude unless staff cannot safely care for the child without impacting others (such as when managing excessive drooling) or when the child meets the facility's exclusion criteria (such as fever)

Scenario 4 – Acute Respiratory illness at a School

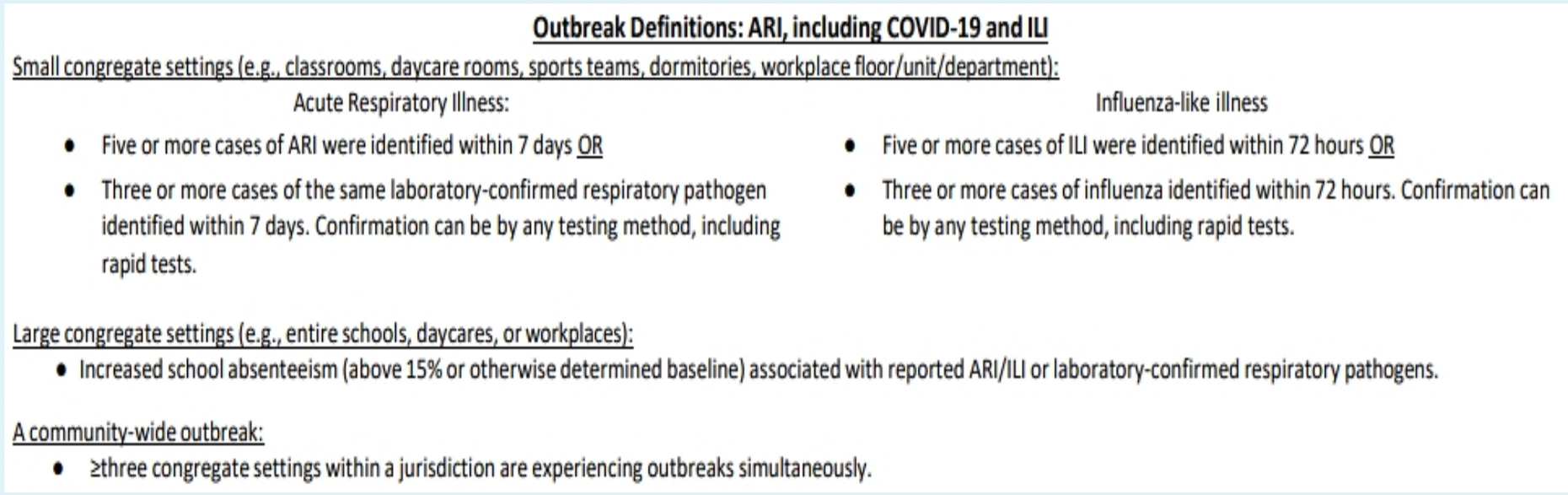
At Central Middle School, five students from two adjacent seventh grade classrooms and several others from various grades involved in extracurricular activities have developed cough, sore throat, and congestion over a three-day period. While none have fevers, the school nurse reports that overall school absenteeism has exceeded 15% over the past three school days. Concerned about the spread, the school nurse contacts the LHD for guidance.

Questions:

1. Does this meet the ARI outbreak definition per the school respiratory illness toolkit? Why or why not?
2. What immediate actions should the school take based on the toolkit guidance?

Scenario 4 Review

1. **Does this meet the ARI outbreak definition per the school respiratory illness toolkit? Why or why not?**
   - Yes. According to the ARI guidelines, an outbreak in a large congregate setting like a school is defined by >15% absenteeism, along with more than five students experiencing ARI symptoms. This scenario meets that threshold.



Outbreak Definitions: ARI, including COVID-19 and ILI

Small congregate settings (e.g., classrooms, daycare rooms, sports teams, dormitories, workplace floor/unit/department):

Acute Respiratory Illness:

- Five or more cases of ARI were identified within 7 days OR
- Three or more cases of the same laboratory-confirmed respiratory pathogen identified within 7 days. Confirmation can be by any testing method, including rapid tests.

Influenza-like illness

- Five or more cases of ILI were identified within 72 hours OR
- Three or more cases of influenza identified within 72 hours. Confirmation can be by any testing method, including rapid tests.

Large congregate settings (e.g., entire schools, daycares, or workplaces):

- Increased school absenteeism (above 15% or otherwise determined baseline) associated with reported ARI/ILI or laboratory-confirmed respiratory pathogens.

A community-wide outbreak:

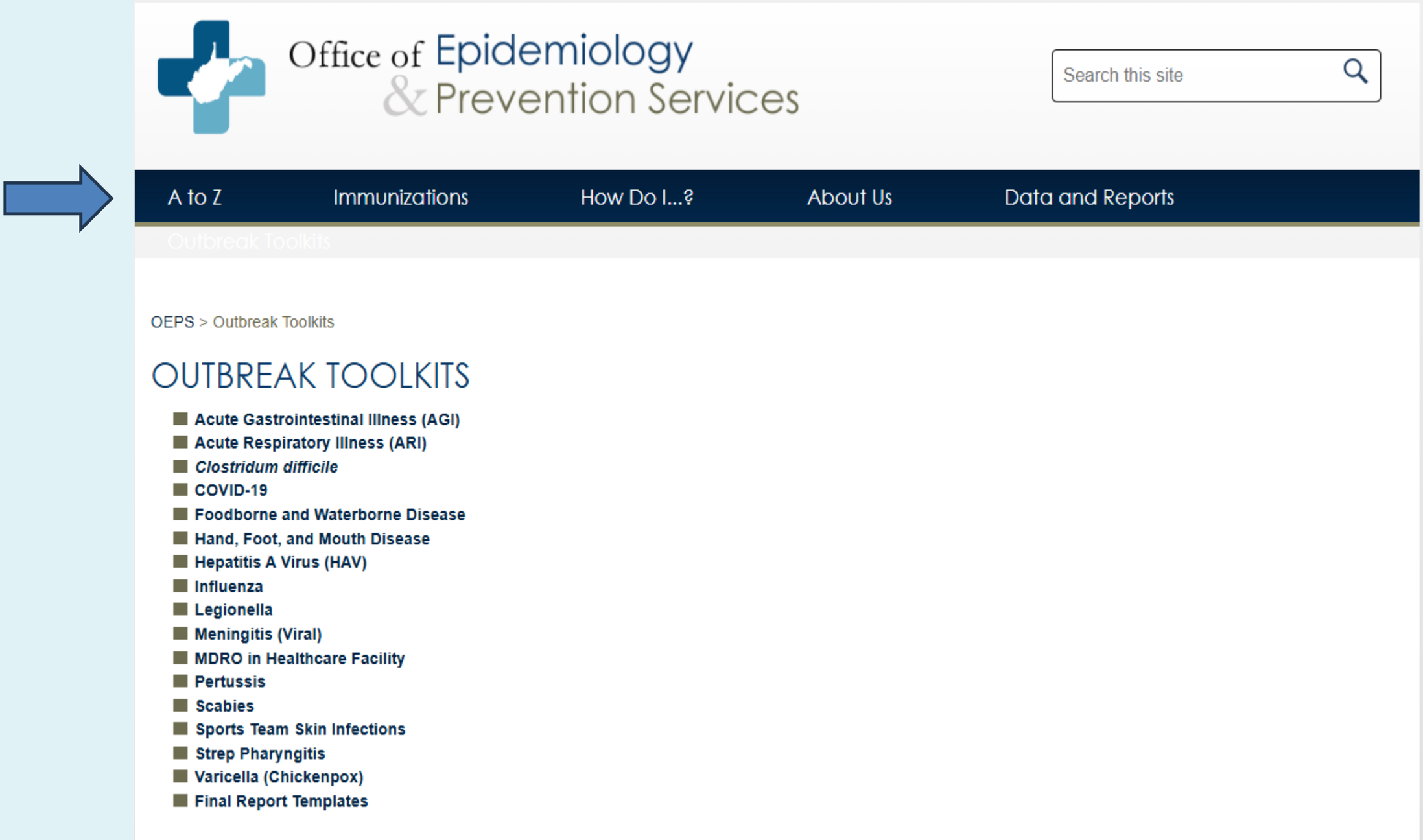
- ≥three congregate settings within a jurisdiction are experiencing outbreaks simultaneously.

2. **What immediate actions should the school take based on the toolkit guidance?**
   - The school should notify the LHD, begin daily tracking of absenteeism, and initiate control measures such as:
     - Isolating symptomatic students until they can go home
     - Reinforcing respiratory hygiene and frequent handwashing
     - Enhance cleaning of frequently touched surfaces

Outbreak Toolkits – Office of Epidemiology and Prevention Services (OEPS) Website

West Virginia Department of HEALTH

oeps.wv.gov/Pages/default.aspx



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