

1. DISEASE REPORTING

1.1 PURPOSE OF REPORTING, SURVEILLANCE, INVESTIGATION

- ❖ To detect respiratory disease outbreaks of reportable pathogens in all congregate settings where SARS-CoV-2, influenza, and Respiratory syncytial virus (RSV) outbreaks occur.
- ❖ To provide public health guidance regarding control measures (e.g., prophylaxis, immunization, masking, ventilation, isolation) that reduce transmission and the risk of severe outcomes.
- ❖ To characterize the epidemiology of respiratory disease outbreaks.

1.2 REPORTING REQUIREMENTS FOR RESPIRATORY VIRAL OUTBREAKS

All clusters meeting the following criteria should be reported to TDH:

- ❖ Respiratory outbreak of known etiology
 - In high-risk congregate settings including long-term care facilities (LTCFs), an outbreak is defined as two or more epidemiologically linked individuals with the same test-confirmed bacterial or viral infection (including influenza, RSV and COVID-19) within a 7-day period.
- ❖ Respiratory outbreak of unknown etiology
 - In other healthcare and non-healthcare settings, a respiratory outbreak is defined as a sudden increase in cases of pneumonia or acute respiratory illness for a 7-day period with no known cause, which disrupts normal operations.

1.3 LOCAL PUBLIC HEALTH AUTHORITY RESPONSIBILITIES

- ❖ Educate and consult with local medical providers and facilities to promote compliance with respiratory outbreak reporting.
- ❖ Investigate respiratory disease outbreaks of reportable pathogens in all settings.
- ❖ For non-reportable respiratory pathogens, prioritize outbreak investigation in high-consequence congregate settings.
- ❖ Provide public health guidance regarding control measures (e.g., prophylaxis, immunization, masking, ventilation, isolation) that reduce the risk of severe outcomes and decrease transmission.

2. DISEASES AND THEIR EPIDEMIOLOGY

2.1 SOURCES + ROUTES OF TRANSMISSION

- ❖ Most respiratory pathogens enter the body through inoculation of respiratory mucosa in the mouth, nose, or eyes or through inhalation of respiratory aerosols containing pathogens released into the air from breathing, coughing, and sneezing. Respiratory droplets may be suspended in air for long periods of time allowing for airborne transmission. Respiratory pathogens may also be transmitted by contaminated fomites.

Table 1. Respiratory Viral Illnesses

| | RESEVOIRS | TRANSMISSION | COMMUNICABILITY | TREATMENT | IMMUNIZATIONS |
|-------------------|--|---|--|--|---|
| Influenza (A,B,C) | Humans, but spread of novel viruses from birds & mammals is possible | Mostly droplet; maybe via aerosol or contaminated surface | 3–7 days, possible shedding one day before symptom onset | Antivirals such as Oseltamivir (Tamiflu), Baloxavir (Xofluza) and Zanamivir (Relenza) | Yes (Afluria, Fluarix, Fluzone, and others) |
| SARS-CoV-2 | Animal source | Droplet, contact | 2 days before to 10 days after illness onset. | Antivirals such as Paxlovid, Molnupiravir (Lageviro), Remdesivir (Veklury) convalescent plasma | Yes (Pfizer, Moderna, Novavax, and others) |
| RSV | Humans, rarely chimpanzees | Droplet, contact | 1-5 days after onset; longer (weeks) in infants & the immune-compromised | Over the counter pain relievers or fever reducers | Yes (Pfizer Abrysvo, Nirsevimab) |

2.2 SUSCEPTIBILITY + IMMUNITY

- ❖ Infants, the elderly, and individuals with underlying medical conditions are more likely to suffer serious illness from most pathogens.
- ❖ Immunizations are especially important for people at highest risk of Respiratory Viral Illnesses (RVIs) and help protect them from severe illness, hospitalization, and death. For the most current immunization guidance on common respiratory pathogens, please utilize the following resources:
 - [TDH Respiratory Virus Vaccine Toolkit](#)
 - [Respiratory Virus Resource for Providers](#)
 - [TDH COVID-19 Vaccine Information](#)
 - [TDH Influenza Vaccine Information](#)
 - [CDC COVID-19 Vaccination for LTCF Residents](#)

3. OUTBREAK RESPONSE

3.1 RESPONSE OVERVIEW

- ❖ SARS-CoV-2, influenza, and RSV are common respiratory pathogens and are not reportable on an individual case level, but outbreaks are required to be reported to health authorities. For outbreak investigation definitions, refer to Table 2.
- ❖ Individual-level case investigation, including the collection of line lists, may not be practical for all respiratory disease outbreaks of non-reportable pathogens such as SARS-CoV-2, influenza, and RSV.
- ❖ When individual-level case investigation is not feasible, other investigation efforts should include recording counts of symptomatic individuals, positive test results, hospital admissions and deaths upon initial report and weekly thereafter.
- ❖ Setting specific response: Public health investigation should be prioritized for high-risk congregate settings which have a higher risk for morbidity or mortality.
 - Healthcare settings (e.g., long-term care facilities, residential behavioral-health facilities, intellectual and developmental disability, child welfare residential settings)
 - Non-healthcare settings (e.g., shelters, jails and prisons, employee housing) facilities.

3.2 OUTBREAK INVESTIGATION DEFINITIONS

Table 2. Outbreak Definitions for Public Health Response

| RESPIRATORY ILLNESS | CONFIRMED |
|---------------------|-----------------------------------|
| SARS-CoV-2 | 3 or more cases in a 7-day period |
| Influenza | 2 or more cases in a 3-day period |
| RSV | 3 or more cases in a 7-day period |

Reach out to any facilities who have reported a suspect outbreak that does not meet confirmed outbreak definition listed above. Educate and provide contact information.

3.3 PUBLIC HEALTH INVESTIGATION

- ❖ Public Health should initiate outbreak investigations when they are notified of a confirmed, presumptive, or suspect respiratory disease outbreak. Refer to Table 3 to initiate investigation steps based on setting type.
- ❖ Contact facilities with reported cases to encourage prompt detection and promote treatment and prophylaxis as needed.

Table 3. Public Health Outbreak Investigations

| | High-Risk Congregate Settings | Non-Congregate Healthcare Settings | Other Congregate Settings |
|---|---|---|--|
| Setting Type | Often a healthcare setting, but not always | Healthcare settings | Non-healthcare settings |
| Examples | LTCFs, assisted living facilities, correctional, shelters | Hospitals, outpatient clinics, dialysis centers, surgery centers | Schools, dorms, restaurants, senior/independent living facilities |
| Outbreak Response Thresholds | Facilities who meet the public health outbreak thresholds in Table 2 should be investigated and reported as outbreaks. | Scenarios in which non-congregate healthcare respiratory outbreaks should be prioritized include: large outbreaks, outbreaks of extended duration, outbreaks associated with crisis-level staffing shortages, or outbreaks that meet criteria for severe morbidity/mortality. The nature of the outbreak should be facility-acquired or have evidence showing active spread within the facility. | Outbreak investigations may be warranted if there is a sudden increase in cases for a 7-day period that disrupts normal operations. |
| Investigation Steps and Surveillance | <p>Record counts of symptomatic individuals, positive test results, hospital admissions and deaths upon initial report and weekly thereafter.</p> <p>Surveillance should be continued until 14 days after the last case is identified. Then the investigation record can be closed.</p> <p>Document mitigation and control activities provided to facility, including health education, vaccination, and post- or pre-exposure prophylaxis.</p> | <p>Provide public health guidance to the facility and record counts of symptomatic individuals, positive test results, hospital admissions and deaths upon initial report.</p> <p>Recommend facility follow public health actions until 14 days after the last case is identified.</p> <p>Submit final summary report including case counts, hospitalizations, deaths, test results, and mitigation activities.</p> | <p>If outbreak response is initiated: Provide public health guidance to the facility and record counts of symptomatic individuals, positive test results, hospital admissions and deaths upon initial report.</p> <p>Recommend facility follow public health actions until 14 days after the last case is identified.</p> <p>Submit final summary report including case counts, hospitalizations, deaths, test results, and mitigation activities.</p> |
| Public Health Guidance | <p>Provide standardized public health guidance including: infection prevention and control, treatment, prophylaxis, and vaccination interventions to reduce morbidity and mortality in high-consequence congregate settings.</p> <ul style="list-style-type: none"> • CDC Healthcare Guidance • Nursing Home Toolkit | <p>Provide standardized public health guidance including: infection prevention and control, treatment, prophylaxis, and vaccination interventions to reduce morbidity and mortality in these settings.</p> <ul style="list-style-type: none"> • CDC Healthcare Guidance • Healthcare Worker Guidance | <p>General public health guidance including: masking, ventilation, treatment, prophylaxis, and vaccination interventions to reduce morbidity and mortality in all congregate settings.</p> <ul style="list-style-type: none"> • CDC Respiratory Virus Guidance • TDH RVI Website • School Guidance |

3.4 DOCUMENTING AND RECORDING OUTBREAK INVESTIGATION

- ❖ Ongoing Monitoring
 - Establish a process for receiving routine updates from facilities during the outbreak.
 - Document the number of symptomatic individuals, positive test results, hospitalizations, and deaths.
- ❖ Reporting
 - Within 1 week of identifying a respiratory viral illness cluster, regional and metro health department staff should request an outbreak ID in the [Outbreak ID Request REDCap project](#).
 - Investigators should close investigations after 14 days of no new positive cases. Final data can be submitted by entering data directly into the [RVI Outbreaks Database REDCap](#) or by submitting the minimum required information in Table 4 below to RVI.Health@tn.gov
 - Summary data from the outbreak investigation should be entered into the [RVI Outbreaks Database REDCap](#) within 30 days of closure.
 - For most viral respiratory illness investigations, a narrative outbreak summary report is optional. Outbreaks with multiple deaths, large case numbers, significant public health intervention, or concerning transmission characteristics should include outbreak summary reports.

Table 4. Minimum RVI Outbreak Reporting Elements and Timeframes

| Initial Cluster Report | Final Cluster Report |
|--|---|
| Investigation Triggers: initiate investigations on clusters meeting established definitions | Investigation Triggers: closure steps should be initiated 14 days after last reported case |
| Reporting Timeframe: within 7 days of identification | Reporting Timeframe: 30 days after closure |
| Link to report: https://redcap.link/outbreakID | Link to report: RVI Outbreak REDCap |
| <ul style="list-style-type: none"> • Date cluster was reported to public health • Method of identification • Regional Investigator • Name and address of facility • Facility setting (nursing home, corrections, etc.) • Number of suspect cases at initial identification • Date of first case onset • Suspected etiology • Need for additional resources or recommendations | <ul style="list-style-type: none"> • Facility name • Date of first onset • Date of last onset • Total number of cases • Number of lab-confirmed cases • Etiology • Number hospitalized • Number died • Number of cases vaccinated/unvaccinated • Number of contacts offered/receiving PEP • Public health recommendations provided |

4. ADDITIONAL RESOURCES AND SUPPORT

- ❖ Investigation Assistance:
 - The Central Office Respiratory Viral Illness team can Help with investigating respiratory viral clusters and collecting the minimal data elements required for reporting. The team can assist with - selected viral pathogens, specific investigation steps, or all respiratory viral cluster activities. Requests can be emailed to RVI.Health@tn.gov.

- Report additional needs, such as testing supplies, to the Central Office Respiratory Viral Illness team at RVI.Health@tn.gov.
- ❖ Infection Control Support: The Healthcare-Associated Infections (HAI) Infection Prevention Program is available to review infection control best practices with facilities virtually or in person, particularly in healthcare and other high-risk settings. Requests can be emailed to HAI.Health@tn.gov.

5. RESOURCES

| Topic | Resource | Notes |
|------------------------------|--|---|
| Health Care Settings | Infection Control Guidance: SARS-CoV-2 | Includes CDC specific information for nursing homes, dental facilities, dialysis, and Emergency Medical Services |
| | CDC Guidance for Managing Healthcare Personnel with SARS-CoV-2 Infection or Exposure to SARS-CoV-2 | Includes CDC guidance for determining the duration of restriction from the workplace for Healthcare personnel with SARS-CoV-2 infection |
| | CDC Project Firstline- Infection Control Guidance: Respiratory Viruses | Infection control guidance from Project Firstline: Respiratory Viruses |
| Long Term Care Settings | CDC Viral Respiratory Pathogen Toolkit for Nursing Homes | Preventing the spread of respiratory viruses in nursing homes |
| School Settings | Preventing Spread of Infections in K-12 School | Preventing the spread of infections in K-12 schools |
| General Information | CDC - Respiratory Viruses Data Snapshot | Select your state / territory and your county to receive information on COVID-19, flu, and RSV in your community |
| | CDC Respiratory Virus Guidance | CDC respiratory virus guidance for the general public |
| | TDH Respiratory Virus Webpage | TDH webpage for respiratory viruses in Tennessee |
| | TDH COVID-19 Cluster FAQs | TDH COVID-19 Cluster Frequently Asked Questions |
| | TDH COVID-19 Guidance Considerations | This document outlines additional considerations for implementing CDC Respiratory Virus Guidance |
| RVI Immunization Information | TDH Respiratory Virus Vaccine Toolkit TDH COVID-19 Vaccine Information TDH Influenza Vaccine Information | TDH resources and recommendations for immunizations for selected respiratory viruses |
| | Respiratory Virus Resource for Providers | TDH immunization toolkit for healthcare providers |
| | CDC COVID-19 Vaccination for LTCF Residents | CDC COVID-19 vaccination information for long-term care facility residents |

6. APPENDIX