RESPIRATORY DISEASE OUTBREAKS, Community Settings

Scope: This document applies to outbreaks of respiratory illness caused by multiple pathogens (see Agents) in community settings (see Settings). This B-73 does **not** apply to respiratory outbreaks in healthcare settings, which should be managed according to Influenza in Healthcare Settings B-73 or to respiratory disease outbreaks outside of community settings (Respiratory Disease Outbreak B-73).

Excluded Pathogens:
This B-73 does **not** apply to the following pathogens, which should be managed according to their respective B-73 or TBCP manual: chickenpox/varicella, COVID-19, diphtheria, *Haemophilus influenzae* (H. flu), legionellosis, measles, mumps, pertussis, polio, rubella, smallpox, tetanus, and tuberculosis.

1. **Agents**:
   Many viral and bacterial pathogens can cause acute respiratory illness. Often, outbreaks of respiratory illness occur in community settings without a known etiology. This B-73 is intended for managing outbreaks caused by pathogens with similar modes of transmission and mitigation methods. This section describes a non-exhaustive list of pathogens applicable to this B-73.

   Included pathogens:
   - Viral pathogens: influenza (flu), respiratory syncytial virus (RSV), adenovirus, human parainfluenza viruses, human metapneumovirus, rhino/enteroviruses, human coronaviruses (non-SARS), and respiratory viral illnesses of unknown cause.
   - Bacterial pathogens: *Mycoplasma pneumoniae*, *Chlamydia pneumoniae*, and non-invasive* group A *Streptococcus*.

   ***Note:** Group A streptococcal pharyngitis is the only non-invasive cases covered within this B-73. Additional information on *Streptococcus* can be found in the Streptococcus B-73.

2. **Identification:** Outbreaks of respiratory illness are most common in autumn and winter but may occur any time of year.
   a. **Symptoms**: Varies with agent. General symptoms include fever, upper or lower respiratory congestion, cough, sore throat, shortness of breath, chills, headache, myalgia, malaise, and sometimes gastrointestinal (GI) symptoms.
      - **Influenza-Like Illness (ILI) refers to:** Fever **plus** cough or sore throat. Other influenza symptoms include shortness of breath, chills, headache, myalgia, and malaise. Influenza can sometimes cause gastrointestinal (GI) symptoms. **Note: Some persons, such as elderly individuals, children with neuromuscular disorders, and infants may have atypical clinical presentations, including the absence of fever.**
      - **Acute Respiratory Illness (ARI)** refers to an illness characterized by any two of the following: fever, cough, rhinorrhea (runny nose) or nasal congestion, sore throat, or muscle aches.

   b. **Differential Diagnosis**: Acute respiratory illnesses are often attributable to infectious etiologies, however, some non-infectious etiologies can present as ARI, including asthma, malignancies (e.g., lymphoma), and rheumatologic conditions. See CDC Guidance for Unexplained Respiratory Disease Outbreaks for additional information regarding differential diagnoses.

3. **Diagnosis**: Clinical syndrome associated with outbreaks, confirmed by viral culture, molecular assays, rapid antigen test, DFA/IFA test, or other test. Molecular assays such as reverse transcription polymerase chain reaction (rt-PCR) and other nucleic acid detection tests are preferred but depend on the pathogen. Rapid antigen tests should not be relied upon for the diagnosis of hospitalized patients, fatal cases or to rule out a suspected

etiology. In outbreaks of high public health concern, negative rapid test results should be confirmed by another assay when possible. For bacterial pathogens, culture isolates should always be the confirmation.

4. **Incubation**: Varies with pathogen. Ranges from 1 day to >3 weeks. Bacterial infections generally have longer incubation times than viral infections. See Table 1 for incubation periods of common respiratory pathogens.

5. **Reservoir**: Varies with agent; mostly human.

6. **Source**: Nasal or pharyngeal secretions.

7. **Transmission**: Droplet, aerosol, or fomite. The relative importance of each route of transmission varies by pathogen.

Table 1. Incubation periods of common respiratory pathogens

Pathogen	***Incubation period***
Influenza	1 to 4 days; average 2 days
Respiratory syncytial virus	2 to 8 days
SARS-CoV-2	2 to 14 days, average 5 days
Group A Streptococcus	2 to 4 days
Adenovirus	2 to 14 days
Human parainfluenza viruses	2 to 6 days
Human metapneumovirus	3 to 6 days
Rhino/enteroviruses	2 to 7 days
Human coronaviruses (non-SARS)	2 to 14 days, average 5 days

8. **Communicability**: Varies with agent. In general, up to 2 days prior to and through 1 day after resolution of fever without use of fever reducing medication; may be longer in children or in patients with compromised immune systems.

9. **Specific Treatment**: Supportive care (e.g., rest, antipyretics, fluids, etc.). Antiviral therapy is available for influenza. Bacterial infections may require antibiotic treatment. *Note: Children with influenza and other viral illnesses should not take aspirin*.

10. **Chemoprophylaxis:** Chemoprophylaxis may be considered in influenza outbreaks in high-risk institution settings (e.g. long-term care facilities for older adults and children). Refer to CDC guidelines for further details: https://www.cdc.gov/flu/professionals/antivirals/summary-clinicians.htm.

11. **Immunizations:** Immunizations exist for influenza and RSV for some age groups and should be offered.

12. **Immunity**: Varies by agent. Immunity against re-infection is generally short lasting.

OUTBREAKS

1. **Reporting procedures**
   Under Title 17, Section 2500, *California Code of Regulations* all suspected outbreaks are reportable.
   Refer to the LAC DPH Respiratory Illness Reporting Guide for a breakdown of respiratory diseases and reporting instructions.

2. **Settings**
   Community Congregate
   - **Community care facilities:**
     - Adult Residential Care Facilities, all license types
     - Continuing Care Retirement Communities
     - Psychiatric Health Facilities, not including Acute Psychiatric Hospitals
     - Residential Care Facilities for the Elderly
     - Residential Facilities for the Chronically Ill
     - Social Rehabilitation Facilities
     - Long-Term Care Facilities
     - Residential Substance Use Treatment Facilities
     - Mental Health Treatment Facilities
   - **Sites that provide housing for people experiencing homelessness:**
     - Shelters

- Recuperative care centers
- Single room occupancy hotels (SRO)

- **Correctional/detention facilities**

Education

- Early care and education (ECE) facilities
- TK-12 schools
- Institutes of higher education (IHE), including colleges, universities, and trade and technical schools
- Programs serving school-aged children, including day care, camps, and youth sports programs

Worksites

- Places of employment not listed above and as defined in Cal/OSHA COVID-19 Prevention Non-Emergency Regulations, section 3205(a)(2)(A)-(D).

3. **Case Definition**
An individual is defined as an outbreak case if they are epidemiologically linked (epi-linked) and meet at least one of the following criteria:

a. **Diagnostic criteria**:
- The individual has a positive viral test for one of the pathogens listed above, OR
- The individual has been diagnosed by a provider with one of the pathogens listed above.

b. **Symptom-only criteria**:
- The individual exhibits the new onset of two or more symptoms related to acute respiratory illness (ARI); AND
- The individual does not have a lab-confirmed diagnosis or clinical suspicion for another pathogen or one of the excluded diseases listed.

4. **Outbreak Definitions**

In Community Settings, an outbreak must meet the following criteria:
1. **Among an exposed group** – For example, individuals who were together in the same location when at least one person was sick, within a 7-day period, and **at least 20% of the group** have symptoms and/or test positive for an acute respiratory illness (including COVID-19).
2. **Across the entire site** – Within a 3-day period, **at least 10% of the average daily attendance** are absent and/or report symptoms of and/or test positive for an acute respiratory illness.

Note: The minimum number of cases is 5 people. In smaller groups or sites with fewer than 15 people, the minimum number of cases is 3.

5. **Required Report Forms:**
- Acute Respiratory Illness Epi Form - Non-Healthcare Associated Settings
- Line List – for Students, Staff, or Residents of Community (Non-Healthcare) Facilities (**PDF EXCEL**)

6. **Epidemiologic Data for Outbreaks:**
a. Confirm etiology of outbreak using laboratory data
b. Determine total number of persons at risk.
c. Maintain surveillance for new cases until rate of ARI is down to "normal" or no new cases for 1 incubation period.
d. Create an epi-curve, by date of onset. Only put those that meet the case definition on the epi-curve. *(Optional)*

CONTROL OF CASE, CONTACTS & CARRIERS

CASE:
Precautions: Symptomatic individuals should stay home from work or school until 24 hours have passed after resolution of fever (without the use of fever reducing medications) and other symptoms are either resolved or improving. Limit exposure to others, especially those at high risk for complications. Those recovering from symptomatic illness should wear a mask around others for 10 days from date of onset.

In all settings, symptomatic individuals are recommended to take a COVID-19 antigen test to assist with initial cohorting and isolation. If COVID-19 is diagnosed, see COVID-19 B73.

Residents in high-risk settings where people reside overnight who develop symptoms of acute respiratory illness should be tested at a minimum

for influenza and SARS-CoV-2; they should be moved to a single room, if available, or remain in current room, pending results of viral testing. They should not be placed in a room with new roommates, nor should they be moved to the COVID-19 care unit unless they are confirmed to have COVID-19 by SARS-CoV-2 testing. Residents who are determined to have neither SARS-CoV-2 infection nor influenza should be cared for using standard precautions and any additional transmission-based precautions based on their suspected or confirmed diagnosis.

CONTACTS: No restrictions.

Residents in community settings who are contacts of a COVID-19 case should be managed according to the guidelines for COVID-19 in those settings. Contacts of other infectious respiratory illness should wear a mask for up to 10 days when outside of their rooms and in the presence of others.

CARRIERS: Not applicable.

GENERAL CONTROL RECOMMENDATIONS FOR OUTBREAKS

1. Reinforce good hand hygiene and respiratory etiquette (cover cough and sneezes, dispose of tissues properly).
2. Promote good ventilation by ensuring the HVAC system/fans are set to ON (not AUTO), installing MERV 13 filters or higher into HVAC systems, opening windows and doors, and using portable HEPA filters in crowded areas as necessary.
3. Reinforce the importance of early detection of cases and removing them from contact with others. Suggest policies that encourage staying home when sick including allowing remote work / learning. Encourage planning for absences with backup systems.
4. Provide posters and health education about hand hygiene and respiratory etiquette. Find printable materials at LAC DPH Health Education Materials.
5. Discourage sharing water bottles, utensils, or other items that may contain saliva.
6. Encourage regular environmental cleaning with EPA registered disinfectant appropriate for respiratory pathogens.
7. Consider canceling group activities until the outbreak is resolved.

Considerations for Community Congregate Settings with High-Risk Populations
Note: Specific recommendations may vary based on the agent(s) responsible for the respiratory disease outbreak.)

1. New resident admission should continue unless there are serious concerns that the facility is unable to continue meeting safety standards. Any decision to halt admissions is upon discretion of the Regional Medical Director and outbreak investigation team.
2. Implement universal source control with well-fitting face masks or respirators that cover a person's mouth and nose.
3. Implement appropriate transmission-based precautions. For influenza, this includes droplet and standard precautions.
4. Initiate antiviral treatment for confirmed cases of influenza per CDC guidance and when appropriate, consider chemoprophylaxis for close contacts.
5. Suspend group activities until outbreak is resolved.
6. Where possible, separate staff that care for sick patients from staff that care for well patients.
7. Institute droplet precautions for symptomatic individuals.
8. If applicable, designate a separate area for non-symptomatic, high-risk individuals, placing them in less crowded areas.

Note: Site-specific guidance should be created and implemented upon discretion of the investigation team. Recommendations can be tailored as needed. For additional assistance, consult with the Community Outbreak Team.

DIAGNOSTIC PROCEDURES

Clinical and epidemiologic histories are required to aid in laboratory test selection.

Wear appropriate airborne precaution personal protective equipment (PPE) when collecting respiratory specimens.

Available respiratory pathogen testing methods vary by suspected pathogen. When investigating respiratory outbreaks of unknown etiology, order respiratory viral panel for molecular detection. Positive specimens may be reflexed to sequencing for further characterization depending on pathogen.

If avian influenza or novel influenza is suspected, immediately notify supervision and contact ACDC for further guidance. ACDC can be reached at 888-397-3993 or 213-240-7941 (M-F 8am-5pm) of 213-974-1234 (afterhours, weekends, and holidays). PHL Director must be notified prior to any specimen collection.

Diagnosis: Clinical syndrome associated with outbreaks, confirmed by viral culture, PCR, rapid antigen test, DFA/IFA test, or other test.

NOTE: Culture should **not** be attempted when avian influenza is suspected. Contact Public Health Laboratory (PHL) or ACDC for instruction.

Standard labeling of specimens with a minimum of two unique patient identifiers, specimen type, and date of collection. (Full name, DOB, specimen type, and date of collection)

Respiratory Specimens:

- Collect a nasopharyngeal swab specimen using a synthetic-tip flocked swab.
- Place the swabs in viral transport medium (VTM) or universal transport media (UTM).
- Transport specimens on cold pack and store refrigerated at 2-8°C for up to 72 hours.
- Please contact LAC PHL (562) 658-1330 for other specimen sources if Avian or novel influenza suspected.

Laboratory Form: If specimen(s) is collected by PHN then complete Public Health Laboratory Test Requisition Form or online request if electronically linked to the PHL.

For fatal cases and specific case requests; If no virus detected by a PCR method, respiratory viral culture may be performed upon special request and lab approval.

PREVENTION

For community settings, focus education on the key steps for preventing respiratory viruses. Emphasis should be placed on immunizations, hygiene, ventilation, and strategies to reduce transmission such as masking and staying home when sick.

Seasonal vaccinations are highly encouraged for COVID-19, RSV, and influenza.

In community congregate settings or settings with high-risk individuals, emphasize testing and treatment. Layer additional strategies as necessary, including more protective isolation requirements and/or screening individuals prior to potential exposure.

If etiology is known, guidance should be based on the specific agent that caused ARI or community-acquired pneumonia.

Additional Resources:

- LA County COVID-19 and Acute Respiratory Reporting Page
- B73 COVID-19 Home Page
- LAC DPH Respiratory Viruses Webpage
- LAC DPH Respiratory Virus Surveillance: RespWatch
- CDC Resources to prepare for Flu, COVID-19, and RSV
- Community Outbreak Team: Communityoutbreak@ph.lacounty.gov

Respiratory Outbreak Investigation Process

By default, all respiratory outbreaks should be open as "Outbreak Unknown-Respiratory" until lab test confirms a pathogen.

Review & Follow B-73 Respiratory Disease OB Chapter & Determine OB Setting for OB Definition

Healthcare- associated institutions

Long-term health care settings-Facilities licensed by the California Department of Public Health (CDPH), Licensing and Certification

- Skilled nursing facility (SNF)
- Intermediate care facility (ICF), intermediate care facility - developmentally disabled (ICF-DD), intermediate care facility-developmentally disabled habilitative (ICF-DDH), intermediate care facility-developmentally disabled nursing (ICF-DDN)
- Congregate living health facility (CLHF) and
- Pediatric day health and respite care facility (PDHRCF).

Nonhealthcare-associated institutions

Settings where people are admitted, residing, or incarcerated overnight such as:

- **Independent living facility**
- **Assisted living facility**
- **Prison, jail**
- **University dormitory, shelters, overnight camps, drug rehabilitation centers, etc.**

Congregate Settings

Settings such as schools, pre-schools, and day camps where people do not reside overnight

OB Definition:

- At least 10% of average daily attendance absent with ARI sustained over a 3-day period facility wide; **OR** 20% of an epidemiologically-linked group (e.g., a single classroom, sports team, or after-school group) ill with similar symptoms, with a minimum of 5 ill, sustained over a 3-day period.

OB Definition:

- Non-influenza respiratory outbreak of **known etiology** definition: At least 1 case of laboratory-confirmed respiratory pathogen, other than influenza, in the setting of a cluster (≥2 cases) of **ARI** within a 72-hour period. **OR**
- Respiratory outbreak of **unknown etiology** definition: A sudden increase of **ARI** cases over the normal background rate in the absence of a known etiology.

Outbreak Report Forms

- **Initial Report: CD OUTBREAK INVESTIGATION — SUB-ACUTE HEALTH CARE FACILITY (H-1164-SubAcute, 9/2018)**
- **Final Report:**
  - **CD OUTBREAK INVESTIGATION — SUB-ACUTE HEALTH CARE FACILITY (H-1164-SubAcute, 9/2018)**
  - **Line List - Respiratory Outbreak for Residents and Staff (PDF/EXCEL) *Required**

Outbreak Report Forms

- **Final Report: ACUTE RESPIRATORY ILLNESS OUTBREAK Non-Healthcare Associated Settings (New Form 1/2019) -Required**
- **Influenza/Respiratory Outbreak Line List for Non-Healthcare Facilities-Students, Staff, Residents (PDF/Excel)- Required**

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