



RESPIRATORY DISEASE OUTBREAKS

(See [Influenza](#), [Pertussis](#), or [Legionellosis](#) if suspected)

Notes:

- Suspected respiratory outbreaks should be initially reported as respiratory outbreaks (unknown) until laboratory testing confirms the etiology.
- Respiratory outbreaks in non-institutional congregate settings (e.g., schools/daycare) where some cases are diagnosed with influenza should be investigated and managed as described in this chapter. That is because the etiology of the respiratory illness is usually not known for most cases and it is possible for multiple respiratory pathogens to coexist in this situation.

1. **Agents:** Varies. Agents that cause respiratory disease including but are not limited to Influenza viruses, *Mycoplasma pneumoniae*, adenovirus, respiratory syncytial virus, rhinovirus, parainfluenza viruses, *Legionella* spp., group A streptococcus, human metapneumovirus, and coronavirus. For more information on [influenza](#)¹, [pertussis](#)², or [legionellosis](#)³ see the appropriate chapter.

2. Identification:

- 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.
- b. **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.
- c. **Differential Diagnosis:** Acute respiratory illnesses are often attributable to infectious etiologies. Non-infectious etiologies that can present as ARI include asthma, malignancies (e.g., lymphoma), and rheumatologic conditions. However,

infectious etiologies must always be considered and evaluated.

- d. **Diagnosis:** Clinical syndrome associated with outbreaks, confirmed by viral culture, PCR, rapid antigen test, DFA/IFA test, or other test.
3. **Incubation:** Varies with agent. Bacterial infections generally have longer incubation times than viral infections.
 4. **Reservoir:** Varies with agent; mostly human.
 5. **Source:** Nasal or pharyngeal secretions.
 6. **Transmission:** Mostly through droplets or contaminated fomites.
 7. **Communicability:** Varies with agent. On average, up to 2 days prior to and through 1 day after resolution of fever; may be longer in children or in patients with compromised immune systems.
 8. **Specific Treatment:** Supportive care (e.g., rest, antipyretics, fluids, etc.). Bacterial infections require antibiotic treatment. With influenza, antiviral medications may reduce the severity and duration of influenza illness if administered within 48 hours of onset. Serious infections with RSV may be prevented with the antiviral Synagis® (palivizumab).
 9. **Immunity:** Varies by agent.

REPORTING PROCEDURES

1. Respiratory Outbreak Definitions:

Under Title 17, Section 2500, *California Code of Regulations* all suspected outbreaks are reportable.

Note: It is important to first determine the outbreak setting because the respiratory

¹ <http://publichealth.lacounty.gov/acd/procs/b73/DiseaseChapters/B73Influenza.pdf>

² <http://publichealth.lacounty.gov/acd/procs/b73/DiseaseChapters/B73Pertussis.pdf>

³ <http://publichealth.lacounty.gov/acd/procs/b73/DiseaseChapters/B73Legionellosis.pdf>



outbreak definitions vary by setting. The outbreak setting is divided into 3 categories:

- a. **Healthcare-associated institutions - Long-term health care settings** defined here as facilities licensed by the [California Department of Public Health \(CDPH\), Licensing and Certification](#)⁴. These include 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).
- b. **Non-healthcare-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.
- c. **Congregate settings** – settings such as schools, pre-schools, and day camps where people do not reside overnight

In healthcare and non-healthcare associated settings, an outbreak is defined as:

- Non-influenza respiratory outbreak of **known** etiology definition: At least **one 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.

In congregate settings, an outbreak is defined as 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 (such as 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. In this setting, an outbreak where some persons are diagnosed with influenza should be managed as a respiratory disease outbreak because it is possible for multiple pathogens to coexist in this setting.

2. Report Forms: SEE TABLE 1

- a. Use the following forms for outbreaks at various settings:

- i. **Non healthcare-associated institution**

[ACUTE RESPIRATORY ILLNESS OUTBREAK – NON-HEALTHCARE ASSOCIATED SETTINGS \(New Form 1/2019, fillable\)](#)⁵ *Required

Line List-Non-Healthcare Facility for Students, Staff, or Residents (**[PDF](#)**⁶ **[EXCEL](#)**) *Required

- ii. **Healthcare-associated institutions Long-term health care setting**

For initial and final reports of respiratory outbreaks:

[CD OUTBREAK INVESTIGATION – SUB-ACUTE HEALTH CARE FACILITY \(H-1164-SubAcute, Revised 10/2018, fillable\)](#)⁷ (**[instructions](#)**)⁸

Line List - Respiratory Outbreak for Residents and Staff (**[PDF](#)**⁹ **[EXCEL](#)**) *Required

3. Epidemiologic Data for Outbreaks:

- a. Establish a case definition (i.e., fever [measured or reported] and either cough, sore throat, or stuffy nose): include pertinent clinical symptoms and laboratory data (if appropriate).

⁴ <https://www.cdph.ca.gov/programs/chcq/lcp/calhealthfind/Pages/Home.aspx>

⁵ <http://publichealth.lacounty.gov/acd/Diseases/EpiForms/OBAcuteRespRepNonHealth.pdf>

⁶ <http://publichealth.lacounty.gov/acd/Diseases/EpiForms/OBInfluRespListNonH.pdf>

⁷ <http://publichealth.lacounty.gov/acd/Diseases/EpiForms/OBSubAcuteHCFacForm.pdf>

⁸ <http://www.publichealth.lacounty.gov/acd/Diseases/EpiForms/OBSubAcuteHCFacInstruc.pdf>

⁹ <http://publichealth.lacounty.gov/acd/Diseases/EpiForms/OBInfluRespListHealth.pdf>



- b. Confirm etiology of outbreak using laboratory data (rapid test, culture, or PCR).
 - c. Create line list that could include:
 - i. names of cases
 - ii. dates of onset
 - iii. symptoms
 - iv. age
 - v. hospitalization status
 - vi. results of laboratory tests
 - vii. prior immunization history
 - viii. epi links to other cases (room #s, grades in school, etc.)
 - ix. avian or swine exposure, if relevant
 - d. Maintain surveillance for new cases until rate of AFRI is down to “normal” or no new cases for 1 week.
 - e. Create an epi-curve, by date of onset. Only put those that meet the case definition on the epi-curve. (Optional)
5. Discourage sharing water bottles.
 6. Emphasize importance of early detection of cases and removing them from contact with others.
 7. Encourage regular environmental cleaning with EPA registered disinfectant appropriate for respiratory pathogens.
 8. Consider canceling group activities.
 9. Provide educational materials to facility-including posters, handouts, etc. For influenza and respiratory virus health education materials see: <http://publichealth.lacounty.gov/acd/HealthEd.htm>

Consider the following additional recommendations for healthcare-associated institutions, especially with high risk patients:

(Note: The specific recommendations might vary based on agents identified as the cause of the respiratory disease outbreak.)

CONTROL OF CASE, CONTACTS & CARRIERS

CASE: Varies by agent.

Precautions: Advise symptomatic individuals to stay away from work or school for at least 24 hours after resolution of fever. Limit exposure to others, especially those at high risk for complications.

CONTACTS: No restrictions.

CARRIERS: Not applicable.

GENERAL CONTROL RECOMMENDATIONS FOR OUTBREAKS

1. Reinforce good hand hygiene among all (including residents/patients, visitors, staff, and residents/students).
2. Emphasize respiratory etiquette (cover cough and sneezes, dispose of tissues properly).
3. Reinforce staying home when sick.
4. Provide posters and health education about hand hygiene and respiratory etiquette.

1. Close facility or affected areas within a facility to new admissions. The duration of closure or limiting admissions is typically 1 week after onset of illness for the last case. However, the exact duration of closures or limiting admissions should be assessed on a case-by-case basis.
2. Suspend group activities until 1 week after last case.
3. If possible, separate staff that cares for sick from staff that cares for well patients.
4. Institute droplet precautions for symptomatic individuals.
5. Refer to Los Angeles County Department of Public Health [Influenza Outbreak Prevention and Control Guidelines for Skilled Nursing Facilities¹⁰](#) or Centers for Disease Control and Prevention (CDC) [Interim Guidance for Influenza Outbreak Management in Long-Term Care Facilities | Health Professionals | Seasonal Influenza \(Flu\)¹¹](#)

DIAGNOSTIC PROCEDURES

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

¹⁰ <http://www.ph.lacounty.gov/acd/docs/Flu/FluSNFOBGuidelines/InfluenzaGuidelines07092015.pdf>

¹¹ <https://www.cdc.gov/flu/professionals/infectioncontrol/ltc-facility-guidance.htm>



Nasopharyngeal (NP) or nasal swab, and nasal wash or aspirate. Public Health Laboratory (PHL) recommends Dacron or Nylon flocked swabs, do NOT use wooden swabs. NP swabs are preferred because the specimens can be tested for influenza and a variety of other respiratory pathogens using PCR based technology. All other specimens can only be tested for influenza. Samples should be collected within the first 4 days of illness. Collect specimens from **at least 2 separate symptomatic individuals** and up to 5 symptomatic individuals for any community-based outbreak and select those individuals with the most recent onset for specimen collection.

Container: Viral Culturette with M4 viral transport medium.

Laboratory Form: If specimen(s) is collected by PHN then complete [Public Health Laboratory Test Requisition Form](#)¹² or online request if electronically linked to the PHL.

Examination: Influenza PCR and/or Respiratory Pathogen PCR Panel. Testing algorithm is determined by the PHL. **Material:** Nasopharyngeal swab preferred; nasal swab can be used if necessary. See: [MD/ND Policy 117 Nasopharyngeal Specimen Collection](#)¹³; [Competency Checklist for Nasopharyngeal Specimen Collection](#)¹⁴

Storage: Keep refrigerated and upright. If specimen is collected by PHN, deliver to Public Health Laboratory as soon as possible. Additional specimen and storage information can be found here: [LA County Department of Public Health - Public Health Laboratory](#)¹⁵

PREVENTION/EDUCATION

Guidance should be based on the specific agent that caused ARI or community acquired pneumonia if possible. Additional information can be found in the appropriate B-73 Influenza, Pertussis, or Legionellosis chapters.

¹² <http://www.publichealth.lacounty.gov/lab/docs/H-3021%20Test%20Request%20Form.pdf>

¹³ <http://intranet/ph/PDFs/PolicyProcedures/MD117.pdf>

¹⁴ <http://intranet/ph/PDFs/PolicyProcedures/ChecklistNasopharyngealSpecimen.pdf>

¹⁵ <http://www.publichealth.lacounty.gov/lab/PanFlu.htm>



TABLE 1. RESPIRATORY DISEASE OUTBREAK FORMS

NON HEALTHCARE-ASSOCIATED INSTITUTIONS	INITIAL REPORT	FINAL REPORT
<ul style="list-style-type: none"> ○ Congregate settings-Schools and day camps ○ Non-healthcare-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. 		<p><u>ACUTE RESPIRATORY ILLNESS OUTBREAK – NON-HEALTHCARE ASSOCIATED SETTINGS (New Form 1/2019, fillable)</u> Line List-Non-Healthcare Facility for Students, Staff, or Residents (<u>PDF EXCEL</u>) *Required</p> <p><u>ACUTE RESPIRATORY ILLNESS OUTBREAK – NON-HEALTHCARE ASSOCIATED SETTINGS (New Form 1/2019, fillable)</u> <input type="checkbox"/> Line List-Non-Healthcare Facility for Students, Staff, or Residents (<u>PDF EXCEL</u>) *Required</p>
HEALTHCARE-ASSOCIATED INSTITUTIONS	INITIAL REPORT	FINAL REPORT
<ul style="list-style-type: none"> ○ Healthcare- associated institutions Long-term health care settings defined here as facilities licensed by the <u>California Department of Public Health (CDPH), Licensing and Certification</u>. These include 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). 	<p><u>CD OUTBREAK INVESTIGATION — SUB-ACUTE HEALTH CARE FACILITY (H-1164-SubAcute Revised 10/2018, fillable) (instructions)</u></p>	<p><u>CD OUTBREAK INVESTIGATION — SUB-ACUTE HEALTH CARE FACILITY (H-1164-SubAcute Revised 10/2018, fillable)</u></p> <p>Line List - Respiratory Outbreak for Residents and Staff (<u>PDF EXCEL</u>) *Required</p>

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**