RESPIRATORY DISEASE OUTBREAKS (also see Influenza Outbreaks)

1. **Agents**: Influenza viruses A, B, and C, *Mycoplasma pneumoniae*, adenovirus, respiratory syncytial virus, rhinovirus, parainfluenza viruses, *Legionella* spp., group A streptococcus, and severe acute respiratory syndrome (SARS) coronavirus.

2. **Identification:**

   a. **Acute febrile respiratory infection (AFRI)** is defined as any illness with a fever of at least 100°F accompanied by a cough or a sore throat in the absence of a known cause.

   b. **Symptoms**: Fever, upper or lower respiratory congestion, non-productive cough, sore throat, chills, headache, myalgia, malaise, gastrointestinal (GI) symptoms. Duration and recovery vary with agent. Infection with non-human strains of influenza such as avian influenza viruses theoretically may cause other illness, such as gastroenteritis or hepatitis.

   c. **Differential Diagnosis**: Agents that cause febrile respiratory illnesses or community acquired pneumonia including but are not limited to influenza *Mycoplasma pneumoniae*, adenovirus, respiratory syncytial virus, rhinoviruses, parainfluenza viruses, *Legionella* spp., group A streptococcus, and severe acute respiratory syndrome (SARS) coronavirus.

   d. **Diagnosis**: Clinical syndrome associated with community outbreaks, confirmed by viral isolation (culture or R-Mix), PCR, rapid antigen test, or a DFA/IFA 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**: Largely droplet spread by nasal and pharyngeal secretions, fomites.

6. **Transmission**: Droplet spread by contact with aerosolized droplets or contaminated fomites from infective persons. Possible airborne spread (influenza, SARS).

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 – 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 treated with Synagis™.

   Streptococcal and staphylococcal pneumonias may be secondary infections of influenza and should be treated with appropriate antibiotics.

9. **Immunity**: varies by agent.

REPORTING PROCEDURES

1. **Outbreaks reportable:**

   a. According to Title 17, Section 2500, *California Code of Regulations* all outbreaks are reportable. Outbreaks of respiratory illness may occur in healthcare and non-healthcare settings:

   Healthcare facilities:
   - Non-residential – acute care hospitals,
   - Residential – long-term care facilities (e.g., nursing homes, skilled nursing, sub acute)

   Non-healthcare facilities:
   - Congregate-living settings – jail, juvenile hall, camps, assisted living center
   - Community-based non-residential settings – schools, daycare centers

Outbreak definition:

An outbreak in healthcare or non-healthcare congregate-living facility is defined as three or more cases of AFRI occurring within 48 to 72 hours, in residents who reside in close proximity to each other (i.e., in the same area of the facility).

A cluster or outbreak in schools and daycare centers is a sudden increase of AFRI cases over the normal background rate or 5 cases of AFRI in one week in an epidemiologically linked group (such as a sports team, single classroom, after school group).

Special Note: One case of confirmed influenza by any testing method in a long-term care facility resident is an outbreak by definition and should prompt enhanced surveillance for other cases. See Influenza Chapter.

2. **Report Forms:**

FOR SUB-ACUTE HEALTHCARE FACILITY OUTBREAKS

Initial and final reports
CD OUTBREAK INVESTIGATION – SUB-ACUTE HEALTH CARE FACILITY (H-1164-SubAcute, 5/08)
http://publichealth.lacounty.gov/acd/EpiForms/CD%20Outbreak%20Investigation%20-%20Sub-Acute-%20H-1164-SubAcute.pdf

FOR NON-HEALTHCARE FACILITIES

a. Congregate-living settings: jail, juvenile hall, camps, assisted living centers;
b. Community-based non-residential settings: school and day-care.

Initial report for all types listed above:
INITIAL OUTBREAK FORM FOR SCHOOL/DAYCARE SETTINGS (**acdc obschdc 3/09)**
http://lapublichealth.org/acd/EpiForms/acd-obschdc.pdf ***and***
OUTBREAK WORKSHEET FOR SCHOOL/DAYCARE SETTINGS (7/08)
http://lapublichealth.org/acd/EpiForms/acd-obworksheet.pdf.

Final report
Outbreaks in congregate-living settings:
AFRI AND/OR ACUTE INFECTIOUS PNEUMONIA *CONGREGATE-LIVING* SETTINGS OUTBREAK REPORT FORM (CDPH 9001 10/08)
http://lapublichealth.org/acd/EpiForms/Acute%20FRI_Inf%20Pneumonia%20Congregate%20OB-CDPH%209001.pdf

Final report
Outbreaks in community-based non-residential settings (school, day-care):
AFRI AND/OR ACUTE INFECTIOUS PNEUMONIA *COMMUNITY-BASED* SETTINGS OUTBREAK REPORT (CDPH 9000 10/08)
http://lapublichealth.org/acd/EpiForms/Acute%20FRI_Inf%20Pnemonia%20Community%20OB-CDPH%209000.pdf **.**

3. **Epidemiologic Data for Outbreaks:**

a. Make a case definition that includes clinical symptoms and pertinent laboratory data (if indicated).

b. Confirm etiology of outbreak using laboratory data (rapid test, culture, or PCR).

c. Create line list including:

i. names of patients with Influenza-Like Illness (ILI)
ii. dates of onset of ILI
iii. symptoms
iv. age
v. hospitalization status
vi. results of laboratory tests
vii. prior immunization history
viii. travel history if relevant
ix. epi links to other cases (room #s, grades in school, etc)

d. Create epi-curve, by date on onset, of all cases of ILI during the outbreak. Only put those on the epi curve that meet the case definition.

e. Maintain surveillance for new cases until rate of AFRI is down to “normal” or no new cases for 1 week.

CONTROL OF CASE, CONTACTS & CARRIERS

CASE: Varies by agent.

Precautions: None. Advise patients 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 visitors, staff, residents, students).
2. Emphasize respiratory etiquette (cover cough and sneezes, dispose of tissues properly).
3. Provide posters and health education about hand hygiene and respiratory etiquette.
4. Encourage reduction of sharing water bottles or water fountains.
5. Emphasize importance of early detection of cases and removing them from contact with others.
6. Encourage regular environmental cleaning with EPA-registered disinfectant.
7. Consider isolation and/or cohorting and/or quarantine for congregate-living facilities.
8. Consider canceling group activities.

Consider the following for congregate-living facilities, especially with high risk patients:

1. Close facility or affected areas to new admissions until 1 week after last case.
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.
5. These recommendations may be adapted for non-influenza outbreaks re: cleaning, cohorting, exclusion criteria, and isolation and infection control standards. http://www.cdph.ca.gov/certlic/facilities/Documents/LNC-AFL-08-33Attachment.pdf

DIAGNOSTIC PROCEDURES

Clinical and epidemiologic history required to aid in laboratory test selection.

1. **Culture or PCR**: Ideally collect no later than 2 days after onset. Collect at least 5 specimens for any outbreak and select those patients with the most recent onset for specimen collection.

   NOTE: culture should not be attempted when avian influenza is suspected. Contact Public Health Lab (PHL) or ACDC for instructions.
   Container: Viral Culturette. Do NOT use wooden swab.

   Laboratory Form: **Test Requisition and Report Form H-3021** or online request if electronically linked to the Public Health Laboratory.

   Examination Requested: Respiratory virus culture, PCR for influenza.

   Material: Nasopharyngeal swab preferred; NP wash or aspirate.

   Storage: Keep refrigerated and upright. Deliver to Public Health Laboratory as soon as possible.

PREVENTION/EDUCATION

1. IHigh-risk persons and their close contacts (e.g., family members, healthcare staff) should be immunized against influenza according to ACIP recommendations (see ACDC or IP website).High-risk persons should also be immunized against pneumococcal disease according to ACIP recommendations. See specific disease chapter for details.

2. Practice good personal hygiene, avoid symptomatic persons during outbreaks, and do not work or go to school when ill with a respiratory disease. Cases may return to work/activities 24 hours after fever resolves while off anti-pyretics.

3. Do not give aspirin to children with influenza and other acute respiratory viral illnesses.

4. Postpone elective hospital admissions during epidemic periods, as beds may be needed for the ill.

5. At all healthcare facilities, restrict the movement of staff and visitors with respiratory infections. See recommendations (except vaccine and anti-viral treatment) from *Infection Control Measures for Preventing and*

Controlling Influenza Transmission in Long-Term Care Facilities to apply to non-influenza outbreaks. Available at: http://www.cdc.gov/flu/professionals/infectioncontrol/longtermcare.htm.

6. See *Hospital Association of Southern California Recommended Management Actions to Prepare Hospitals for Overflow Situations in the Winter Season - White Paper*. Available at: http://www.hasc.org/download.cfm?ID=15148

Additional information on the control of influenza during outbreaks can be found in the B-73 Influenza chapter.

RESPIRATORY DISEASE OUTBREAK FORMS

SUB-ACUTE HEALTHCARE FACILITY	INITIAL REPORT	FINAL REPORT
	CD OUTBREAK INVESTIGATION – SUB-ACUTE HEALTH CARE FACILITY (H-1164-SubAcute, 5/08) http://publichealth.lacounty.gov/acd/EpiForms/CD%20Outbreak%20Investigation%20-%20Sub-Acute-%20H-1164-SubAcute.pdf	CD OUTBREAK INVESTIGATION – SUB-ACUTE HEALTH CARE FACILITY (H-1164-SubAcute, 5/08) http://publichealth.lacounty.gov/acd/EpiForms/CD%20Outbreak%20Investigation%20-%20Sub-Acute-%20H-1164-SubAcute.pdf
NON-HEALTHCARE FACILITY	**INITIAL REPORT**	**FINAL REPORT**
o Congregate-Living (e.g., jail, juvenile hall, camps, assisted living center)	INITIAL OUTBREAK FORM FOR SCHOOL/DAYCARE SETTINGS (acdc obschdc 3/09) http://lapublichealth.org/acd/EpiForms/acd-obschdc.pdf	AFRI AND/OR ACUTE INFECTIOUS PNEUMONIA *CONGREGATE-LIVING* SETTINGS OUTBREAK REPORT FORM (CDPH 9001 10/08) http://lapublichealth.org/acd/EpiForms/Acute%20FRI_Inf%20Pneumonia%20Congregate%20OB-CDPH%209001.pdf
	OUTBREAK WORKSHEET FOR SCHOOL/DAYCARE SETTINGS (7/08) http://lapublichealth.org/acd/EpiForms/acd-obworksheet.pdf.	
o Community-Based (e.g., school, daycare center)	INITIAL OUTBREAK FORM FOR SCHOOL/DAYCARE SETTINGS (acdc obschdc 3/09) http://lapublichealth.org/acd/EpiForms/acd-obschdc.pdf	AFRI AND/OR ACUTE INFECTIOUS PNEUMONIA *COMMUNITY-BASED* SETTINGS OUTBREAK REPORT (CDPH 9000 10/08) http://lapublichealth.org/acd/EpiForms/Acute%20FRI_Inf%20Pnemonia%20Community%20OB-CDPH%209000.pdf
	OUTBREAK WORKSHEET FOR SCHOOL/DAYCARE SETTINGS (7/08) http://lapublichealth.org/acd/EpiForms/acd-obworksheet.pdf.	