Respiratory Outbreaks 101

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August 28 and September 4, 2009
Tuberculosis is outrunning us. The accelerated pace of resistance comes from the world’s neglect of tuberculosis. Stinginess created this problem. Generosity is needed to fix it.

- editorial - 14-Sep-2006
Reported Respiratory Outbreaks LAC by Month 2006 – 2009 to Date*

2006; n=5
2007; n=12
2008; n=15
2009; n=79

*Respiratory outbreaks with disease names: influenza, H1N1, ILI, Other, Unk. Resp., Unspecified

51 outbreaks in 2009 pending final closure.
As of August 30, 2009
Total Number of Respiratory Illness Outbreaks by MMWR Week April - August, 2009
Respiratory Outbreaks: Challenges

• Differentiating outbreaks from sporadic disease can be difficult
  – Baseline disease rates often unknown
  – Seasonality: cyclical increases in sporadic disease expected

• Wide range of pathogens can cause similar clinical syndromes
  – Viral, bacterial, fungal
  – Outbreaks may involve multiple etiologies
  – Potential new pathogens
Seasonal Variation

Proportion

0.5
0.4
0.3
0.2
0.1


Arrivedate

UCL

P = 0.16
LCL

Subgroup Sizes: Min n=385  Max n=4733

Los Angeles County Public Health, ACDC
Bioterrorism Preparedness and Response Unit
# Respiratory Outbreak Etiologies

<table>
<thead>
<tr>
<th>Pathogens</th>
<th>Hantaviruses, New World</th>
<th><em>Histoplasma capsulatum</em></th>
<th>Human metapneumovirus</th>
<th>Influenza viruses</th>
<th><em>Legionella</em> spp.</th>
<th><em>Mycobacterium tuberculosis</em></th>
<th><em>Mycoplasma pneumoniae</em></th>
<th>Parainfluenza virus type 1-4</th>
<th>Respiratory syncytial virus (RSV)</th>
<th>Rhinovirus</th>
<th><em>Streptococcus pneumoniae</em></th>
<th><em>Yersinia pestis</em> (secondary to bubonic plague)</th>
<th><em>Yersinia pestis</em> (primary pneumonic plague)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adenovirus</td>
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<tr>
<td><em>Bacillus anthracis</em></td>
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<tr>
<td><em>Blastomyces dermatitidis</em></td>
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<tr>
<td><em>Bordetella pertussis</em></td>
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<td><em>Chlamydia (Chlamyphila) psittaci</em></td>
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<tr>
<td><em>Chlamydia (Chlamyphila) pneumoniae</em></td>
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<tr>
<td><em>Cocciiodoides immitis</em></td>
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<td>Coronavirus</td>
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<td><em>Coxiella burnetti</em></td>
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<tr>
<td><em>Francisella tularensis</em></td>
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<tr>
<td>Group A <em>Streptococcus</em></td>
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<tr>
<td><em>Haemophilus influenzae</em></td>
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</tbody>
</table>
Why Investigate?
We Investigate Because

- **Potential intervention**
  - Vaccine, environmental intervention, education

- **Advance knowledge**
  - Epidemiologic – e.g., disease or transmission characteristics
  - Laboratory – e.g., diagnostic test evaluation
  - Intervention effectiveness

- **Unusual outbreak characteristics**
  - Unknown etiology or clarification of causative agent(s)
  - Severe disease
  - Large or rapidly progressing
  - Potential BT event
  - Vulnerable or unusual population

- **Demand** – excessive public anxiety/concern
Goals

• To determine etiology of respiratory morbidity and mortality in LA County
• To reduce morbidity and mortality due to respiratory outbreaks in LA County
  – May not be able to reduce transmission
• To ally concerns of the public
• Special studies
  – Intervention efficacy
Common Definitions

• Outbreak – An outbreak or cluster of respiratory disease is illness in excess of what would expected for a given time and location
• *Epidemic* – a located cluster of cases
• *Pandemic* – worldwide epidemic
AFRI

• Most of the time we don’t know the etiology of the respiratory outbreak

• Acute Febrile Respiratory Infection
  – Fever $>100^\circ F$ or $38^\circ C$
  – New onset cough or sore throat
LA County Definition for AFRI Outbreak

• Community setting: 5 or more AFRI occurring in a 1 week period in an epidemiologically linked group
• Congregate living setting: 3 or more AFRI occurring in a week period
• Congregate living setting: 1 case of confirmed influenza
First Call

• What do you do?
Initial Outbreak Assessment

• Initial outbreak assessment like doing a history and physical
• Gather subjective and objective data
• Make a SOAP note
# Initial Outbreak Form for School/Daycare Settings

Fax completed form to ACDC at (213) 202-5999

<table>
<thead>
<tr>
<th>VCMR ID:</th>
<th>Health District:</th>
<th>Outbreak Number:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Type of Outbreak:**
- [ ] Respiratory
- [ ] Gastrointestinal (GI)
- [ ] Rash
- [ ] Other: ____________________________
- If GI, is food source suspected?:
  - [ ] Yes
  - [ ] No
  - [ ] Unknown

<table>
<thead>
<tr>
<th>Facility Name</th>
<th>Date of Initial Report</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Address- Number, Street</th>
<th>City</th>
<th>State</th>
<th>ZIP Code</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Contact Person Name:</th>
<th>Phone (   )</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type of Facility</th>
<th>Date of Site Visit</th>
</tr>
</thead>
<tbody>
<tr>
<td>School [ ]</td>
<td>/ / OR [ ] Not applicable</td>
</tr>
<tr>
<td>Daycare [ ]</td>
<td></td>
</tr>
<tr>
<td>Other (please specify):</td>
<td></td>
</tr>
</tbody>
</table>

**Facility Information**
- Total number of children/students: ________
- Total number of staff: ________
- What are the business hours for the school/daycare facility? _____ AM/PM to _____ AM/PM

**Demographics**
- Is there an onsite healthcare worker (e.g., school nurse)?
  - [ ] Yes
  - [ ] No
  - If Yes, what is his/her schedule? ____________________________
# Initial Outbreak Form (2)

## OUTBREAK RELATED QUESTIONS

<table>
<thead>
<tr>
<th>Onset of symptoms (initial case)</th>
<th>Number of classrooms involved?</th>
<th>What grade(s)?</th>
<th>Total number of children in those classrooms</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ Yes ☐ No</td>
<td>☐ Yes ☐ No ☐ Unknown</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Special Ed.? ☐ Yes ☐ No ☐ Unknown
Were specimens collected? ☐ Yes ☐ No ☐ Unknown
If Yes, what type: __________________________________________________________________________

1) To date, how many **STUDENTS** have/had symptoms of illness? ____________
2) To date, how many **STAFF** have/had symptoms of illness? ____________
3) Of those ill, how many have a laboratory/physician diagnosis? ____________ students ____________ staff
4) What were the laboratory test results or physician diagnoses? __________________________________________________________________________

5) How many have been hospitalized? ____________ students ____________ staff
6) Has anyone received treatment for their illness? ☐ Yes ☐ No ☐ Unknown
   If Yes, what type of treatment? ☐ antibiotics ☐ antivirals ☐ other
7) Has the facility sent ill persons home? ☐ Yes ☐ No ☐ Unknown
8) What control steps have been taken or recommended (check all that apply)?
   ☐ sent ill students/staff home ☐ screened classrooms for others ill ☐ increased student education/posters
   ☐ sent informational letters to home (please attach copy) ☐ increased environmental cleaning ☐ in-services for staff
   ☐ Other: __________________________________________________________________________
9) If respiratory outbreak, were flu vaccines offered at the school prior to the outbreak? ☐ Yes ☐ No ☐ Unknown
   If Yes, who was vaccinated? ☐ students (approx. number _____) ☐ staff (approx. number _____)

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Chief complaint, vital signs
### Outbreak Worksheet (line list)

**OUTBREAK WORK SHEET FOR SCHOOL/DAYCARE SETTINGS**

Fax completed worksheet to ACDC at 213-262-5399

<table>
<thead>
<tr>
<th>School/Daycare Name:</th>
<th>Contact Person/Phone No.:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outbreak Number:</td>
<td></td>
</tr>
</tbody>
</table>

#### Field Definitions
- **Student/Staff Identification**
  - Student/Staff Name
  - Date of Birth or Age
  - Sex (M/F)
  - Classroom/Office #
- **Illness Description**
  - Date Onset of Illness
  - Highest Temperature (°F or °C)
  - Vomiting (Y/N)?
  - Diarrhea (Y/N)?
  - Abdominal Cramps (Y/N)?
  - Body Aches (Y/N)?
  - Cough (Y/N)?
  - Runny Nose (Y/N)?
  - Sore Throat (Y/N)?
  - Rash (Y/N)?
  - Other (Y/N)?
- **Diagnostics**
  - Specimen collected (Y/N)?
  - Specimen Type (e.g., stool, HP, Other)?
  - Diagnosis/Lab Result (Y/N)?
  - Hospitalized (Y/N)?
  - Died (Y/N)?
  - Date recovered (if yes, date)

#### Table Examples

<table>
<thead>
<tr>
<th>Student/Staff Name</th>
<th>Date of Birth or Age</th>
<th>Sex (M/F)</th>
<th>Classroom/Office #</th>
<th>Date Onset of Illness</th>
<th>Highest Temperature (°F or °C)</th>
<th>Vomiting (Y/N)?</th>
<th>Diarrhea (Y/N)?</th>
<th>Abdominal Cramps (Y/N)?</th>
<th>Body Aches (Y/N)?</th>
<th>Cough (Y/N)?</th>
<th>Runny Nose (Y/N)?</th>
<th>Sore Throat (Y/N)?</th>
<th>Rash (Y/N)?</th>
<th>Other (Y/N)?</th>
<th>Specimen collected (Y/N)?</th>
<th>Specimen Type (e.g., stool, HP, Other)?</th>
<th>Diagnosis/Lab Result (Y/N)?</th>
<th>Hospitalized (Y/N)?</th>
<th>Died (Y/N)?</th>
<th>Date recovered (if yes, date)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student 1</td>
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<td>Student 2</td>
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</tbody>
</table>

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Specific symptoms, lab results
Case Definition

- AFRI
- Consistency is important
- May or may not include laboratory results
Develop a Case Definition

Table: Common components and examples of an outbreak case definition

<table>
<thead>
<tr>
<th>Element*</th>
<th>Descriptive features</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Person</td>
<td>Age group</td>
<td>“children under the age of 5 years”</td>
</tr>
<tr>
<td></td>
<td>Sex</td>
<td>“males”</td>
</tr>
<tr>
<td></td>
<td>Occupation</td>
<td>“health care workers at hospital X”</td>
</tr>
<tr>
<td></td>
<td>Exclusion criteria</td>
<td>“persons with no previous history of chronic cough or asthma”</td>
</tr>
<tr>
<td></td>
<td>Race</td>
<td></td>
</tr>
<tr>
<td>Place</td>
<td>Geographic location</td>
<td>“resident of Y county or state”</td>
</tr>
<tr>
<td></td>
<td>Facility</td>
<td>“living in X nursing home”; “student at A high school”</td>
</tr>
<tr>
<td>Time</td>
<td>Illness onset</td>
<td>“onset of illness between May 4 and August 31, 2007”</td>
</tr>
<tr>
<td>Clinical</td>
<td>Pneumonia</td>
<td>“clinical or radiographically confirmed pneumonia”</td>
</tr>
<tr>
<td>features</td>
<td></td>
<td>“shortness of breath and fever”</td>
</tr>
<tr>
<td>Laboratory</td>
<td>Cultures; serology</td>
<td>Pneumococcus isolated from blood; rapid influenza test positive</td>
</tr>
<tr>
<td>criteria</td>
<td></td>
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</tr>
</tbody>
</table>

*Please note components of an outbreak case definition vary for each outbreak.*
Epi Curve

• Picture worth 1,000 words
• Should be based on consistent case definition
• Information may come from many sources

Like an oxygenation saturation curve in a vent patient in the ICU
Example of the Use of Epi Curves

- Outbreak at a Juvenile Detention Center
  - Made up of 6 separate camps
  - Camps shared an infirmary and sometimes equipment
  - Continued over several weeks
Figure: Epi Curve Template for Respiratory Illness Outbreak (Case Definition: Any person, child or staff at any of the Challenger camps with fever of 98.8°F or higher AND cough, sore throat or congestion)
Determining Etiology

- Most outbreaks look the same
  - Some clinical clues
- Principle respiratory syndrome or associated syndromes
- Age and population characteristics
- Season and location
- Exposures
## Clinical Clues

<table>
<thead>
<tr>
<th>Pathogen</th>
<th>Institutional clusters?</th>
<th>Specific group settings often affected</th>
<th>Occupation or avocation</th>
<th>Animal exposure risk factor</th>
<th>Environmental exposure</th>
<th>High risk activities</th>
<th>Persons with increased susceptibility or disease severity</th>
<th>Potential for bioterrorism agent?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coccidioides immitis</td>
<td>Yes</td>
<td>Military</td>
<td>Farmer, Construction worker</td>
<td>None</td>
<td>Soil, Dust clouds</td>
<td>Excavation</td>
<td>HIV, Post-transplant, Filipinos, African-Americans</td>
<td>No</td>
</tr>
<tr>
<td>Coronavirus</td>
<td>Yes</td>
<td>None</td>
<td>Healthcare or Laboratory worker (SARS-CoV)</td>
<td>None</td>
<td>No</td>
<td>Travel to affected areas (for SARS-CoV infections)</td>
<td>Infants, Elderly, Diabetes mellitus</td>
<td>No</td>
</tr>
<tr>
<td>Coxiella burnetti</td>
<td>Yes</td>
<td>None</td>
<td>Animal handler, Laboratory worker</td>
<td>Primary contact, sheep, goats</td>
<td>Animal products of conception, Aerosol (bioterrorism), ticks</td>
<td>Occupational contact with animal or animal products</td>
<td>Pregnant, Immunocompromised, Existing cardiac valvulopathy</td>
<td>Yes</td>
</tr>
<tr>
<td>Francisella tularensis</td>
<td>No</td>
<td>None</td>
<td>Hunter, Animal handler, Landscaper, Farmer, Laboratory worker</td>
<td>Lagomorphs, Rodents, Ticks, Biting flies</td>
<td>Contaminated hay, mud or water</td>
<td>Moving, Woodworking, Skinning, dressing, or eating game, Hunting, Outdoor activities</td>
<td>HIV (Typhoidal)</td>
<td>Yes</td>
</tr>
<tr>
<td>Group A Streptococcus</td>
<td>Yes</td>
<td>Day Care, Long-Term Care Facility, Nursing Home, Military</td>
<td>Military</td>
<td>None</td>
<td>No</td>
<td>Elderly, HIV, Diabetes, Skin breakdown, Malignancy</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Haemophilus influenzae</td>
<td>Yes</td>
<td>Day Care/School</td>
<td>None</td>
<td>None</td>
<td>No</td>
<td>Asplenics, HIV, Sickle cell disease, Malignancy, American Indian/Alaska native children</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Hantaviruses, New</td>
<td>No</td>
<td>None</td>
<td>Construction worker, Grain farmer</td>
<td>Rodents</td>
<td>Rodent excreta</td>
<td>Outdoor activities, Cleaning/feathering rodent-infected</td>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>
Determining Etiology

• Need laboratory diagnosis to know for sure
  – Bacteria: sputum
  – Viruses: NP swab or wash
  – 3-5 samples per outbreak
  – Obtain samples from people with recent onset
• Diagnose the outbreak, not the individual
• No need for clearance samples or to treat the individual any differently
Assessment and Interventions

- Site Visits
- Educational material
- Isolation/Quarantine/Social Distancing
- Pharmaceutical Interventions

Non pharmaceutical interventions = NPI
Site Visit

Assess cleanliness of facility (things on the floor, sharing of waterbottles?)
Assess educational efforts to date (posters, evidence of in-services?)
Assess resources (hot water? Hand scrub?)
Assess data sources
Assess ability to do interventions/lab specimens
NPI: Applies to All Outbreaks

- Education for handwashing, handscrubs, and respiratory hygiene
- Exclusion criteria (for how long?)
- Environmental cleaning
  - Use EPA registered disinfectant
  - Use for appropriate time
  - Make sure the label says active against the particular pathogen
Survival of Influenza Virus

Surfaces and Affect of Humidity & Temperature*

- Hard non-porous surfaces 24-48 hours
  - Plastic, stainless steel
    - Recoverable for > 24 hours
    - Transferable to hands up to 24 hours
- Cloth, paper & tissue
  - Recoverable for 8-12 hours
  - Transferable to hands 15 minutes
- Viable on hands <5 minutes only at high viral titers
  - Potential for indirect contact transmission

*Humidity 35-40%, Temperature 28C (82F)
Pharmacuetical Intervention

- Influenza: antiviral treatment and vaccine
- Group A strep: penicillin
- Pertussis: erythromycin
- Strep pneumo: penicillin-like antibiotic
- RSV: palivizumab for prophylaxis
# Final Report Form: Community

## Acute Febrile Respiratory Illness and/or Acute Infectious Pneumonia

Community-Based Settings

**Outbreak Report Form**

<table>
<thead>
<tr>
<th>OUTBREAK INFORMATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outbreak classification</td>
</tr>
<tr>
<td>☐ Confirmed ☐ Probable</td>
</tr>
<tr>
<td>Pathogen identified?</td>
</tr>
<tr>
<td>☐ Yes ☐ No ☐ Unk</td>
</tr>
</tbody>
</table>

Identify predominant symptoms experienced by at least half of reported cases:

- ☐ Fever
- ☐ Cough
- ☐ Sore throat
- ☐ Malaise/fatigue
- ☐ Chills/Rigor
- ☐ Arthralgia / Myalgia
- ☐ Shortness of breath
- ☐ Other1 ____________
- ☐ Other2 ____________
- ☐ Other3 ____________

Number of lab-confirmed cases ____________

Number of clinical cases ____________

Total cases ____________

**Setting Information**

Setting Type (check all settings where illnesses occurred):

- ☐ Child day care/pre-school
- ☐ Primary school (K-5)
- ☐ Middle/High School (6-12)
- ☐ College non-dormitory
- ☐ General community
- ☐ Adult day care
- ☐ Other**

*Like your discharge summary*
## Final Form: Congregate Living

**ACUTE FEBRILE RESPIRATORY ILLNESS AND/OR ACUTE INFECTIOUS PNEUMONIA**

**CONGREGATE-LIVING SETTINGS**

**OUTBREAK REPORT FORM**

<table>
<thead>
<tr>
<th>OUTBREAK INFORMATION</th>
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</thead>
<tbody>
<tr>
<td><strong>Outbreak classification</strong></td>
</tr>
<tr>
<td>□ Confirmed □ Probable</td>
</tr>
<tr>
<td><strong>Local outbreak tracking number</strong></td>
</tr>
<tr>
<td><strong>First onset date</strong></td>
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<tr>
<td><strong>Last onset date</strong></td>
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<table>
<thead>
<tr>
<th>Pathogen identified?</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Yes □ No □ Unk</td>
</tr>
<tr>
<td>If yes, specify pathogen</td>
</tr>
</tbody>
</table>

**Describe clinical case definition (clinical syndrome) used during the outbreak**

**Identify predominant symptoms experienced by at least half of reported cases:**

- □ Fever
- □ Cough
- □ Sore throat
- □ Malaise/fatigue
- □ Chills/Rigor
- □ Arthralgia / Myalgia
- □ Shortness of breath
- □ Other 1
- □ Other 2
- □ Other 3

<table>
<thead>
<tr>
<th>RESIDENTS</th>
<th>STAFF PERSONS</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Number lab confirmed cases</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Number of clinical cases</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Total number of persons present during the outbreak.</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Census □ Beds</td>
</tr>
</tbody>
</table>

## SETTING INFORMATION

**Setting Type (check all settings where illnesses occurred)**

- □ Skilled nursing
- □ Residential care facility**
- □ Independent living facility**
- □ Assisted living facility
- □ Acute care hospital
- □ Other hospital
- □ Dormitory**
- □ Jail
- □ Military facility
- □ Camp

*Like your discharge summary*
## Final Forms: Details

**DEMOGRAPHIC AND CLINICAL INFORMATION FOR CASE-PATIENTS**

<table>
<thead>
<tr>
<th>Age range: _____ to _____ yrs.</th>
<th>Median age if available: __________________</th>
<th>Number (%): Female ______</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of patients with fever</td>
<td>Highest temperature recorded: □F □C □O</td>
<td></td>
</tr>
<tr>
<td>Number hospitalized due to outbreak illness</td>
<td>Number with clinical diagnosis of pneumonia</td>
<td></td>
</tr>
</tbody>
</table>

| Number with abnormal chest x-ray |

| Number died due to outbreak illness |

**LABORATORY TESTING AMONG ALL PATIENTS (RESIDENTS AND STAFF):** Please attach copies of test results, if available

<table>
<thead>
<tr>
<th>Type of specimens and tests ordered</th>
<th>No. of patients tested</th>
<th>Findings (count by patient, not by specimens tested)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>EXAMPLE</strong> NP Swab, commercial rapid antigen NP Swab, PCR (VRDL) 5 5</td>
<td>1 Influenza A/B non-specific; 4 Negative 3 Influenza B, 2 Negative</td>
<td></td>
</tr>
</tbody>
</table>

**CONTROL MEASURE INFORMATION**

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
<th>Unk</th>
<th>If yes, describe</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Isolation/home restrictions for ill persons</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. For influenza outbreaks, were persons vaccinated against influenza after onset of this outbreak?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Increased education on personal hygiene (respiratory and hand hygiene)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Environmental controls</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Other measures (1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Other measures (2)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Other measures (3)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**ADDITIONAL INFORMATION:** If available, please attach a facility map, epidemic curve (graph of outbreak cases by time), laboratory results and a summary of the local investigation (if completed). If no summary exists, please provide any other important details and descriptions below.
Useful Outbreak Data

• Gold standard: new incidence of AFRI (daily)
• Illness data from school (daily)
  – Nurse’s office logs
• Absence count from school, by reason for absence (daily)
  – Separate those ill from those out for other reasons
• Less useful: total school absence counts
Outbreak at a Public Elementary School of 550 students

Total Absent
Outbreak at a Public Elementary School of 550 students
Outbreak at a Public Elementary School of 550 students

- **New Onset Ill**
- **New Onset ILI**
Outbreak at a Public Elementary School of 550 students

[Graph showing data trends over time, including indices for Total Sick, Total ILI*, New Onset Ill, New Onset ILI, and Total Absent.]

News Article

Index Case Onset

County of Los Angeles Public Health
School Outbreak Investigations

• Request school data
  – Daily list ILI
  – Daily list absent due to any illness
  – Daily list any absence (by grade if possible)
  – Daily count of any of the above

• Complete line list of ill students
  – Onset date, symptoms very important
  – Verify if seen by PMD, any diagnostic testing done

• Any questions, ask ACDC
Outbreaks With Poor Data

• Data inconsistent, poorly collected
  – Often paper-based records
  – Nurse office visit logs only data available

• Unable to determine proper onset dates for cases and outbreak
  – Can’t distinguish between ill and non-ill
School Outbreak Investigations

- Site visits have multiple purposes
  - Obtain information/data
  - Make concrete recommendations
  - Serve as ambassadors

- Obtain best possible data
  - Different schools keep different records

- Please inform ACD of new developments in outbreaks
LAUSD- A Special Case

- Work through central office
- Wait until permission from central office before going on campus
- Get data from central office
  - Therefore must be clear on what you want and when
- Make a point of sharing data/analyses back with central office
Lessons Learned

• Some outbreaks too big to follow-up completely
  – Detailed data becomes cumbersome
  – Total counts of absent/ill students may be the most realistic

• All outbreaks different
  – Different types of data available
  – Different levels of CHS involvement
Resources

• If help needed, contact ACDC
  – B-73
  – Guidelines for Investigating Respiratory Outbreaks (handed out to AMDs)
  – Worksheets:
    • Line lists
    • Site visits

• CDC Website
  – http://emergency.cdc.gov/urdo/
Questions?